Elephant / Proboscidea Bibliography: 1987-2000

Bibliography Committee of The Elephant Research Foundation

Follow this and additional works at: https://digitalcommons.wayne.edu/elephant

Recommended Citation

This Elephant Bibliography is brought to you for free and open access by the Open Access Journals at DigitalCommons@WayneState. It has been accepted for inclusion in Elephant by an authorized editor of DigitalCommons@WayneState.
ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY: 1987 — 2000

by the Bibliography Committee of the Elephant Research Foundation

The work of the Bibliography Committee of the Elephant Research Foundation (ERF) over the past 13 years is condensed in these pithy pages. We are proud of the results and share them with our readers. Following is a summary of the main points covered in this Bibliography.

- As in previous issues of Elephant, we provide what we have been told is “the most important service ERF provides” — the ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY. Field workers and readers who have limited or no access to computerized facilities are particularly appreciative of the annotated references; we are pleased that they make use of this service. Many of our references are cross-referenced.
- With the publication of this issue of Elephant, we have added numerous references from various sources [some are listed in Elephant, 2(3):123]; others were provided by M. Philip Kahl, Iain Douglas-Hamilton, and their co-workers (details below). A total of 3,409 annotated and/or coded references on living and extinct elephants/proboscideans has been added since the last issue (Vol. 2, No. 3; 1987) was published. Included are references in the Addenda that were added after numbering had been set in final proof for this issue. The current Bibliography is divided into two main sections: “ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY” (3,346 references) and “JUNIOR ELEPHANT BIBLIOGRAPHY” (63 references). With these additions, the current total of entries in Elephant is 5,855 references. Many of the references included in our Bibliography are found in the ERF Library. Special efforts were made to stress references for young readers for they are the future sentinels of our heritage.
- This issue’s Bibliography differs from previous bibliographies published in Elephant in that it includes not only our four-letter codes in the left margin, after the reference number, and our annotations [annotations by staff of ERF, designated simply as "Annotation", with initials of the person(s) who annotated], but also annotations by M. Philip Kahl (designated as "MPK") and Iain Douglas-Hamilton (designated as "ID-H"). The annotations for ID-H were meticulously compiled by Mary and Doug Rigby, thus the symbols "ID-H/M&DR" are used. Each annotation is followed by the initials of the person(s) who wrote the annotation. Many annotations were edited for brevity by our Copy Editor Estelle R. Davidson. Since there are many annotators, it is probable that each annotator will interpret the subject matter differently, thus there may be inconsistencies in the codes, particularly if the originals were not consulted. We suggest that you check the originals to verify their contents.
- We tried our utmost to be as accurate as possible in obtaining original references. Since many of the citations were taken from different sources, we did not always see the originals and were unable to verify the accuracy of the citations. In many cases four-letter codes for citations were given based on the title only, thus some errors may exist. To reduce/avoid confusion, names of sources (e.g., journals, magazines) are written without abbreviations.
- With such voluminous data that are constantly changing, there are bound to be errata (see ERRATA in ENN). We ask our readers to please help us correct and update our files by sending complete references or copies of articles. We will continue to share our sources with everyone — man and beast will benefit.
- We take pride in our efforts and send heartfelt thanks to all our volunteers (see list of annotators below). We are deeply grateful for the contributions by Phil Kahl and Mary Rigby. Their annotations make this ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY that much more important and practical for elephant researchers worldwide. The preparation of this bibliography for printing in Elephant would be impossible without the continuous and invaluable contribution of volunteer Eleanor C. Marsac.

Other Notes

Sequence of appearance of citations in this Bibliography is as follows:
- One author, year of publication, within the same year, listed chronologically, then alphabetically by title, [excluding articles, such as "the", "an", and "a"], and then by subsequent years;
- Same author with only one co-author, in the same chronological sequence as above;
- Same author with two co-authors, arranged alphabetically by the first co-author, not by year;
- Same author with three co-authors, arranged alphabetically by co-authors, not by year, and so forth.
- Whenever possible, we are including the last names of authors in small capital letters, followed by the first names written in full. This system reduces confusion; see for example MARCHANT, Garry and MARCHANT, Gary (it would be impossible to differentiate if only first initials were used). When an author’s name has more than one initial, either revealed in the literature or based on our personal knowledge, we have added the initial to some references when they were not present (e.g., Dublin, Holly T. — the "T." was added to references, sometimes in square brackets); see also Barnes, Richard [F. W.] (1989).
- In Eritrea, first names, rather than second/last names, are used for citation of authorship. Family names as commonly employed by some nationalities are not used; instead, patronymics (fathers’ first names) are employed as second names for sons and daughters; cf. HAGOS, Yohannes (2000).

1Previous references in Elephant appeared in this sequence:
Elephant, 1(1):15-17, Reference numbers 1-57 [unnumbered]
Elephant, 1(2):57-61, Reference numbers 58-387
Elephant, 1(3):69-90, Reference numbers 388-835
Elephant, 1(4):262-295, Reference numbers 836-1346
Elephant, 2(1):198-229, Reference numbers 1347-1804
Elephant, 2(2):223-264, Reference numbers 1805-2229
Elephant, 2(3):124-143, Reference numbers 2230-2446
Elephant, 2(4):116-272, Reference numbers 2447-5855
• Omitted from this roster of references, with very few exceptions, are unpublished reports, manuscripts, and drafts, many of which are found in the libraries of the Elephant Research Foundation and of Iain Douglas-Hamilton. Some of those reports and manuscripts may have been published in house organs or newsletters.

On page 119 we provide a key for the four-letter codes preceding references which have been useful to many of our readers. Please note the following:
• As a matter of standard, all extinct proboscideans (those with * in the first column) are assigned a “U” in the fourth column. Explanation: proboscideans that lived millions of years ago most likely were not captive, but since it is not always possible to determine the geological date and whether or not they were associated with humans during the Pleistocene epoch, we have adopted a policy to simplify the coding system and code them all as “U”.
• In many places, annotations were excerpted and/or edited (e.g., changed from British to American spelling), and specifically shortened.
• Annotated references in this issue of Elephant include only references on living and extinct elephants/proboscideans published from January 1, 1987 through December 31, 1999, which include citations for the year 2000.

For easy reference we provide below range states for the African and Asian elephants.


**Asian elephant range states** [13 countries which have free-roaming elephants, *Elephas maximus*, as of March 1998; see Sukumar and Santiapillai, 1996 (Reference no. 5314 in this issue), page 331]: Bangladesh, Bhutan, China, India, Indonesia (Sumatra), Cambodia (also known as Kampuchea), Laos, Malaysia (Peninsular and Borneo), Myanmar (formerly Burma), Nepal, Sri Lanka, Thailand, and Vietnam.

---

**Annotators**

<table>
<thead>
<tr>
<th>AML = Adrian M. Lister</th>
<th>JMH = Joann M. Holden</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC = Blair C. Cutsi</td>
<td>JS = Jeheskel Shoshani</td>
</tr>
<tr>
<td>BDA = Billie D. Armstrong</td>
<td>JSG = Jann S. Grimes</td>
</tr>
<tr>
<td>CPG = Colin P. Groves</td>
<td>KMS = Kori M. Schultz</td>
</tr>
<tr>
<td>DD = David Dutchie</td>
<td>KT = Keichi Takahashi</td>
</tr>
<tr>
<td>DWA = Dalen W. Agnew</td>
<td>M &amp; DR = Mary and Douglas Rigby</td>
</tr>
<tr>
<td>ECM = Eleanor C. Marsac</td>
<td>MKM = Mahmood K. Mokhayesh</td>
</tr>
<tr>
<td>ERD = Estelle R. Davidson</td>
<td>MPK = M. Philip Kahl</td>
</tr>
<tr>
<td>FDR = Faye D. Rosser</td>
<td>MSW = Michael S. Woodford</td>
</tr>
<tr>
<td>GHM = Gary H. Marchant</td>
<td>PFH = Pamela F. Herzog</td>
</tr>
<tr>
<td>HS = Haruo Saegusa</td>
<td>RAC = Richard A. Chiger</td>
</tr>
<tr>
<td>ID-H = Iain Douglas-Hamilton</td>
<td>RIO = Ronald I. Orenstein</td>
</tr>
<tr>
<td>IMR = Ian M. Redmond</td>
<td>RSL = Richard S. Laub</td>
</tr>
<tr>
<td>JFE = John F. Eisenberg</td>
<td>SCSPL = St. Clair Shores Public Library</td>
</tr>
<tr>
<td>JGE = Joseph G. Engelhard</td>
<td>SKB = Susan K. Bell</td>
</tr>
<tr>
<td>JJ = Julie Juran</td>
<td>SLS = Sandra L. Shoshani</td>
</tr>
<tr>
<td>JJa = Jayantha Jayewardene</td>
<td>SMW = Susan M. Wolak</td>
</tr>
<tr>
<td>JLP = Jules L. Pierce</td>
<td>TA = Terry Ariano</td>
</tr>
</tbody>
</table>
| JKH = James K. Holden  |"

**Bibliography Committee**

<table>
<thead>
<tr>
<th>Billie D. Armstrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan K. Bell</td>
</tr>
<tr>
<td>Richard A. Chiger</td>
</tr>
<tr>
<td>Estelle R. Davidson</td>
</tr>
<tr>
<td>Iain Douglas-Hamilton</td>
</tr>
<tr>
<td>Colin P. Groves</td>
</tr>
<tr>
<td>Pamela F. Herzog</td>
</tr>
<tr>
<td>James K. Holden</td>
</tr>
<tr>
<td>Joann M. Holden</td>
</tr>
<tr>
<td>M. Philip Kahl</td>
</tr>
<tr>
<td>Don Marcks</td>
</tr>
<tr>
<td>Eleanor C. Marsac</td>
</tr>
<tr>
<td>Jules L. Pierce</td>
</tr>
<tr>
<td>Ian M. Redmond</td>
</tr>
<tr>
<td>Douglas Rigby</td>
</tr>
<tr>
<td>Mary Dwyer Rigby</td>
</tr>
<tr>
<td>Faye D. Rosser</td>
</tr>
<tr>
<td>Jeheskel (Hezy) Shoshani</td>
</tr>
<tr>
<td>Sandra L. Shoshani</td>
</tr>
<tr>
<td>Susan M. Wolak</td>
</tr>
</tbody>
</table>
Abbreviations for technical terms and organizations that were used in annotations:

AbNP = Aberdare National Park, Kenya  
AED = The African Elephant Database  
AENP = Addo Elephant National Park, Republic of South Africa  
AERSG = African Elephant and Rhino Specialist Group  
AESG = Asian Elephant Specialist Group  
AIESG = African Elephant Specialist Group  
AMNH = American Museum of Natural History, New York, New York, USA  
ANP = Amboseli National Park, Kenya  
ArNP = Arusha National Park, Tanzania  
AWF = African Wildlife Foundation  
BID = Bad Ivory Database  
CAMPFIRE (Communal Areas Management Program for Indigenous Resources)  
cf. = confer (Latin for “compare to”)  
CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora  
CNP = Chobe National Park, Botswana  
DNPWLM = Department of National Parks and Wild Life Management Library, Harare, Zimbabwe  
DROTC = Democratic Republic of the Congo (capital Kinshasa); formerly Zaire  
DSR = Dzanga-Sangha Reserve, Central African Republic  
EIA = Environmental Investigation Agency  
ENP = Etosha National Park, Namibia  
EPA = Environmental Protection Agency  
EU = European Community  
FAO = Food and Agriculture Organization  
FFI = Fauna and Flora International  
GaNP = Garamba National Park, Democratic Republic of the Congo (formerly Zaire)  
GEMS = Global Environmental Monitoring System, at UNEP  
GIS = Geographic information system at GRID  
GNP = Gonarezhou National Park, Zimbabwe  
GPS = Global Position System  
GRID = Global Resource Information Database  
HGR = Hluhluwe Game Reserve, South Africa  
HNP = Hwange National Park, Zimbabwe  
HSUS = Humane Society of the United States  
IIED = International Institute for Environment and Development  
ISC = International Society of Cryptozoology  
IUCN = International Union for Conservation of Nature and Natural Resources  
JEB = Junior Elephant Bibliography  
JEMA = Journal of the Elephant Managers Association  
KalNP = Kalahari Game Reserve, Botswana  
KBNP = Kahuzi-Biega National Park, Democratic Republic of the Congo (formerly Zaire)  
KFN = Kafue Falls National Park, Zambia  
KNP = Kruger National Park, Republic of South Africa  
KNNP = Kilimanjaro National Park and Forest Reserve, Tanzania  
KVN = Kidepo Valley National Park, Uganda  
LGR = Lopé Game Reserve, Gabon  
LIFE = Living in a Finite Environment  
LMNP = Lake Manyara National Park, Tanzania  
LNP = Luangwa National Park, Zambia  
MaiNP = Maiko National Park, Democratic Republic of the Congo (formerly Zaire)  
MaNP = Matusadona National Park, Zimbabwe  
MENP = Mount Elgon National Park, Kenya  
MFNP = Murchison Falls National Park, Uganda  
MGR = Majete Game Reserve, Malawi  
MKNP = Mount Kenya National Park, Kenya  
MMGR = Masai Mara Game Reserve, Kenya  
MNP = Mikumi National Park, Tanzania  
MPNP = Mana Pools National Park, Zimbabwe  
NGO = Non-governmental organization  
NGR = Nazinga Game Ranch, Burkina Faso  
NNP = Nairobi National Park, Kenya  
PNN = Pilanesberg National Park, Republic of South Africa  
QENP = Queen Elizabeth National Park, Uganda  
RCNP = Royal Chitwan National Park, Nepal  
REF = Rhino and Elephant Foundation  
RNP = Ruaha National Park, Tanzania  
SACIM = Southern African Centre for Ivory Marketing [on June 20, 1991, countries include: Botswana, Namibia, South Africa, Zambia, and Zimbabwe; proposed that the utilization of products other than ivory gleaned from culled populations could be sold]  
SAVA = South African Veterinary Association  
SGR = Selous Game Reserve, Tanzania  
SNP = Serengeti National Park, Tanzania  
SSC = Species Survival Commission  
SWRA = Sengwa Wildlife Research Area, Zimbabwe  
TaiNP = Tai National Park, Democratic Republic of the Congo (formerly Zaire)  
TNP = Tarangire National Park, Tanzania  
TRAFFIC = Trade Records Analysis of Flora and Fauna in Commerce [publication names: TRAFFIC, TRAFFIC (U.S.A.), Traffic Bulletin, and TRAFFIC Bulletin]  
UKN = United Nations  
UNEP = United Nations Environmental Program  
UNESCO = United Nations Environmental, Scientific and Cultural Organization  
USAID = United States Agency for International Development  
VHF = Very high frequency  
VMGR = Vwaza Marsh Game Reserve, Malawi  
VNP = Virunga National Park, Democratic Republic of the Congo (formerly Zaire)  
WCI = Wildlife Conservation International  
WNP = Waza National Park, Cameroon  
WPZ = Washington Park Zoo, Portland, Oregon, USA [now Oregon Zoo]  
WSU = Wayne State University, Detroit, Michigan, USA  
WWF = World Wildlife Fund  
YGR = Yankari Game Reserve, Nigeria
Four-letter codes as used in ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY (edited)

Categories listed in the first column:

E = Elephas
L = Loxodonta
B = Elephas and Loxodonta

E* = extinct/fossil proboscideans
+ = extinct and living taxa
U = unknown or not given

Categories listed in the second and third columns:

a = anatomy (including histology, cytology)
   o = biochemistry (including hematology and immunology)
b = behavior
   p = physiology and/or function
c = conservation and management
   q = management in captivity
d = diseases and injuries
   r = reproduction (including musth, parenting)
e = ecology (including biodiversity, taphonomy)
   s = symbiosis (including commensalism, mutualism, parasitism)
f = folklore
   t = training and taming
   u = hunting, poaching, scavenging
g = general
h = history (including archaeology)
i = training and taming
j = ecology and behavior
   v = evolution (including classification, phylogeny, systematics, taxonomy, dating methods, extinction)
k = culling, controlling, cropping, and capturing methods
   w = distribution and habitat
l = longevity (including mortality)
x = genetics
   y = art
m = measurements (physical and censusing)
z = miscellaneous (including fiction)
n = nutrition and/or growth

Categories listed in the fourth column:

C = captive and domestic
   B = Both statuses
W = wild
   U = Unknown (with reference as to whether captive or wild)

PART I. ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY


2448 LkcW Abe, Eve Lawino. (1992). The status of elephants in Uganda: Queen Elizabeth National Park. Pachyderm, 15:49-52. Annotation: Overview trend from early sixties when population was so high, culling was deemed necessary, through the 1970's when military operations and rampant poaching brought population down to under 300 animals. Northern sector population of about 250 animals is study focus, but data will also be amassed for Kazinga group of about 60 and the Ishasha population of about 200 that move between QENP and Parc National Albert in Zaire [ID-H/M&DR].


Annotation: Conservation of elephants circa late 1980s. Concern for elephants in CITES that led to ivory ban. Most of data deals with East Africa, and research and continuing conservation efforts of Iain Douglas-Hamilton, Cynthia Moss and Joyce Poole [ID-H/M&DR].

266 pp.


2668 *vhU


2669 *vwU


2670 *vaU


2671 *vhU


2672 *gvU


2673 *ljU


2674 *vwU


2675 *ewU


2676 *ghU


2677 *gwU


2678 *evU


2679 *weU

January 2000

Elephant/Proboscidea Bibliography: 1987-2000


2491 EveW ALAHAKOON, Jayanthi and SANTIAPILLAI, Charles. (1997) Elephants: unwitting victims in Sri Lanka’s civil war. Gajah, 18:63-65. Annotation: The casualties of the Sri Lankan civil war are not only people but wildlife, especially large mammals such as elephant and leopard that get caught in the cross fire [ERD].


2494 *vwU ALCOVER, Josep Antoni, CAMPILLO, Xavier, MACIAS, Marta, and SANS, Antoni. (1998). Mammal species of the world: additional data on insular mammals. American Museum Novitates, 3248:1-29. Annotation: Lists Elephas creutzburgi of Crete (pp. 8, 19); Elephas cypriotes of Cyprus (pp. 8, 19); Mammuthus primigenius and M. exilis of Santa Rosa and San Miguel Islands, California Channel Islands (pp. 9, 19); Elephas of Tylos and Cyclades (p. 12). Does not include species from islands that were connected to the mainland during the last glaciation (e.g., Great Britain, Ireland, Palawan) except for a few continental islands that contain faunas exhibiting a grossly disharmonic, truly oceanic character (e.g., Falkland Islands, Wrangel Island) [ECM].


about forty years incorporating anecdotes and most up-to-date information about elephants [JS].


2504 LicW ALLAWAY, James. (1989). The ivory trade in Cameroon. In The ivory trade and the future of the African elephant (coord. Steven Cobb), Vol. 2, Technical Reports, Section 2.3. The Ivory Trade Review Group, Oxford. Annotation: Trophy hunting has accounted for about 125 to 150 pairs of tusks per year in the last decade. Records are incomplete; it is apparent that the government earns a significant amount from hunting fees and ivory export, but illegal trade no doubt plays a more significant role in the movement of ivory from neighboring countries to outside buyers. Cameroon has an active carving industry and has internal and external markets for raw and worked ivory [ID-H/M&DR].

2505 LicW ALLAWAY, James. (1989). The ivory trade in Gabon. In The ivory trade and the future of the African elephant (coord. Steven Cobb), Vol. 2, Technical Reports, Section 2.4. The Ivory Trade Review Group, Oxford. Annotation: Majority of exported tusks, as well as most used in local carving, are illegal, thus few records are available. Gabon has a relatively large population of forest elephants, but increased poaching and range restriction due to agricultural and forestry land use are threats to its stability. Local carving industry is relatively new [ID-H/M&DR].

2506 LicW ALLAWAY, James. (1989). The ivory trade in Nigeria. In The ivory trade and the future of the African elephant (coord. Steven Cobb), Vol. 2, Technical Reports, Section 2.2. The Ivory Trade Review Group, Oxford. Annotation: Elephant population 3,000. Nigerian ivory trade is fueled with imported ivory, most of which is imported and exported illegally. Imported tusks originate mostly from Congo, Chad, Central African Republic, Cameroon, and Zaire with Cameroon being the largest supplier. Probably fewer than 60 tusks of Nigerian origin enter the trade annually from animals shot in crop protection programs in Borno and Gongola, animals poached for meat and ivory in the vicinity of YGR, and minor numbers shot by trophy hunters [ID-H/M&DR].


2519 LdbW AMMANN, Karl. (1992). Snares & Samburu elephants. Swara, 15(3):28. Annotation: Several elephants with trunk tips missing in Samburu/ Buffalo Springs National Park, the result of having been caught in a snare. 12 elephants lost 3-6 inches off trunks; did not seem less healthy or less capable of handling food, but did more grazing than browsing so they could use their feet in the process [E/ECM].

2520 BqC AMORY, Cleveland. (1997). Ranch of dreams: the heartwarming story of America’s most unusual animal sanctuary. Viking, New York, 288 pp. Annotation: Author established Black Beauty Ranch in East Texas. Countless animals from elephants to prairie dogs that have been mistreated for years have been saved from death. Elephants on pages 237-73. On pp. 263-4 is a list of human deaths caused by captive elephants from 1990-96; on pages 265-6 is a list of circus elephant deaths from 1994-97 [E/ECM].


2530 EqcC ANDERSON, Debora and GHISON, Karen. (1997). Management of Asian elephants at the Houston Zoological Gardens. Journal of the Elephant Managers Association, 8(2):30-32. Annotation: Protected contact program in elephants is still in developmental stages; only the future will tell how successful it will be [JS].

2531 LckW ANDERSON, Jeremy L. (1993). The introduction of elephant into medium-sized conservation areas. Pachyderm, 17:35-38. Annotation: Reintroduction of elephants should only be considered if one of the objectives of the reserve is to re-establish the wildlife community where the species formerly occurred. Secondary factors include the ecological role played by elephants and value of this species for visitors [ID-H/M&DR].


A plan has support of African governments, will guide world conservation efforts [E/ECM].

Population loss will be higher once ban goes into effect because price of ivory will be higher and illegal trade will increase [ID-lished as: 1989. "How long has the elephant got?" Weekend Australian. 29-30 Jul 89 [MPK]. Review of proposed ivory ban suggesting


12(4): 1, 5.

EIA News. 3:4-5.


Society highlights: monument to the ivory burning. Swara, 13(2):21-22. Annotation: In January 1990 a monument to commemorate burning of 12 tons of ivory on July 18, 1989 was erected in NNP [SLS].


facilitating sport hunting, the Fish and Wildlife Service would be making a mockery of the Endangered Species Act" [E/SLS].


2640 LczW ANONYMOUS. (1993). Ivory cartel agrees on method to mark tusks: renewed trade is ultimate goal. Elephant Managers Association Newsletter, 4(1):30. Annotation: Members of southern African ivory trading cartel, SACIM, have concluded marking legal ivory with hologram, bar code and serial number will distinguish it from illegal ivory and make resumption of commercial trade possible [E/ECM].


ANONYMOUS. (1993). Scientists are trumpeting mini-mammoth discovery. The Oakland Press, March 25:A-1. Annotation: Dwarf mammoths survived some 6,000 years after though to be extinct, roaming an island near Alaska [E/ECM].


ANONYMOUS. (1993). Zoos may be driving the animals crazy. The Detroit News, April 11:4A. Annotation: Born Free Foundation, a British charity monitoring captive animals, didn’t do scientific study or calculate number affected, but researchers said examples represent global problem. The same species displayed same abnormal behavior in zoos worldwide [E/ECM].


ANONYMOUS. (1994). Elephants: the way forward. BBC Wildlife, 12(8):63. Annotation: “Care for the Wild is saving elephants from cruel slaughter. In southern Africa they are being culled - a barbaric form of population control” [from advertisement for Care for the Wild; E/ECM].


ANONYMOUS. (1995). Elephants - four years after the ivory trade ban. Oryx, 29(2):74-76. Annotation: Excerpt from Dublin Holly T., Milliken, Tom, and Barnes, Richard F. W. 1995 report “Four years after the CITES ban: illegal killing of elephants, ivory trade and stockpile”. TRAFFIC International, Cambridge, UK. Review of situation four years after ivory ban focused on Cameroon, Gabon, Ivory Coast, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe. Law enforcement budgets have decreased and poaching, though lower than pre-ban levels, has increased during last two years. Ivory trade is continuing and new Asian markets may be opening. Majority of range states seem to be experiencing increased human-elephant conflict [ID-H/M&DR].

ANONYMOUS. (1995). Famed bulls dead or missing. National Geographic, 188(1):140. Annotation: Loxodonta africana, hunting, poach-
ing in ANP, and Tanzania. See Reference nos. 2951, 5745 [ECM].


2685 BqtB ANONYM. (1996). The elephant, as he exists in a wild state, and as he has been made subservient, in peace and war, to the purposes of man. Harper & Brothers, Publishers, New York, 300 pp. Reprint of 1839 book published by the British Society for the diffusion of Useful Knowledge. Annotation: Primarily a compendium of matters elephantine from physiology and warfare to training methods and drawings, from wide range of historical sources from Greek and Roman classics to contemporary writings [E/ECM].


2688 EcuW ANONYM. (1996). FFI in Vietnam. Fauna & Flora News, Issue no. 5:1. Annotation: The FFI has started two major projects in Vietnam, one tackling critical status of country’s remaining Asian elephants, the other developing conservation awareness strategy for villages around Cuc Phuong National Park. Thirty years war in Vietnam reduced the elephant population substantially but greater losses have occurred since, due to large-scale poaching and habitat destruction. Today 250-400 elephants remain, less than 25 percent of estimated total in late 1970s [E/ECM].


Anonymous. (1996). Migration study may aid elephant conservation. *Focus*, 18(4):3. **Annotation:** Elephant populations seeking diminishing food sources stray into farmland and inhabited areas, becoming unwelcome throughout many African (and Asian) countries because of danger posed to crops and human life. WWF is participating in study of elephant migration patterns that may help reduce man-elephant conflicts in Cameroon and Chad [E/ECM].


Anonymous. (1996). Of elephants and satellites. *U.S. News & World Report*, 121(16):77-77. **Annotation:** “Abang Ramadan”, a 3 1/2 ton rogue Malaysian elephant devastating crops saved by park rangers who took him to remote location and attached radio collar to neck that allows movements to be tracked by satellite and plotted on Web [E/ECM].


Ban elephants? *Circus Report*, No. 15(Vol. 25):6. **Annotation:** California Representative Sam Farr has joined forces with actress, Kim Basinger, to prohibit use of elephants in traveling shows [E/ECM].


Representative Sam Farr, actress Kim Basinger join forces to stop abuse of circus and traveling elephants [ECM].


2723 EmbW ANONYMOUS. (1997). How elephants and trees coexist: twenty years of the Tuli Elephant Project. REF News, 17:3. Annotation: Bruce Page, Department of Biology at University of Natal Durban Campus, received sponsorship from Rhino & Elephant Foundation for visit to Northern TGR to re-sample vegetation monitoring plots. He has been recording impact of elephants and other environmental factors on trees over the past twenty years [E/ECM].


2732LicW ANONYMOUS. (1997). SA to maintain status quo on elephant trade. REF News, 17:3. Annotation: At meeting of wildlife ministers of Southern African Development Community (SADC), agreement that South Africa will keep status quo of no international trade in ivory and elephant products of South African origin. Namibia, Botswana, Zimbabwe to ask for elephant population downlisting to allow trade [E/ECM].


2737 LbwW ANONYMOUS. (1997). Zaire elephants take refuge in Uganda. REF News, 17:3. Annotation: Over 400 elephants cross border to take refuge in QENP due to fighting between Tutsis and government forces in eastern Zaire [BDA].


2739 EzxC ANONYMOUS (1998). If only humans had the memories of elephants. Animal Keepers’ Forum, 25(6):233. Annotation: An elephant ("Pennie") was euthanized in 1995 and her head buried to preserve skull. Staff members and volunteers at the San Francisco Zoological Gardens have been digging holes since Spring 1998 attempting to find it. Suggestion that zoo place silver dollar with bones it buries so they can be found with metal detector [E/ECM].


2741 EbdC ANONYMOUS (1998). A love story. The Detroit Free Press, February 18, 1998, and Macomb Daily, February 18, 1998, p. 8A. Annotation: Mako”, a male Asian elephant, died of heart problems at Tete d’Or Zoo in France, his female Asian friend of 34 years, “Pankov”, was found in the same ditch where Mako collapsed. She had rejected food after Mako’s death. She died that night [E/ECM].


2745 UqtC ANONYMOUS (1999). Circus “trainer” and zoo inspector guilty of cruelty. The Animal Welfare Institute Quarterly, Spring:5. Annotation: After viewing a videotape showing Mary Chipperfield, prominent “animal trainer” brutally beating a chimpanzee, a camel, and an ele-
phant ("Flora"), a British court convicted her of twelve counts of cruelty toward animals. Charges were brought against Mrs. Chipperfield, her husband, Roger Casley, and employee, Stephen Gillis, after members of Animal Defenders filmed conditions at Chipperfield farm [E/ECM]. According to Ian Redmond, "Flora" is a female African elephant, imported from Zimbabwe (a cull orphan presumably) in 1988 as a small calf, thus at the time this incident took place, she would have been about 10 or 11 years old. She has now been bought by Dudley Zoo in the Midlands of England [JS].


2747 LgiW ANONYMOUS. (1999). Safari: return to our roots. Lufthansa Magazin, 11/99:cover page, 6-14, 16, 18. Annotation: "Watching wild animals in their natural habitat is one of the most exciting ways to spend a vacation. Lions, elephants, tapirs or polar bears — it has never been easier to get close up to any one of these creatures". On the cover an African elephant stretches its trunk straight up towards acacia foliage [E/JS].

2748 EcwW ANONYMOUS. (1999). Thai elephants thriving in the wild. Focus, 21(2):3. Annotation: World Wildlife Funds' field office in Thailand is helping officials reintroduce captive elephants into the wild. Five adult female elephants between ages of 40 and 60 were fitted with radio and satellite transmitters and released in March 1998. Project will be considered a success if the elephants form natural herds, remain in their forest habitat, and begin reproducing [E/ECM].


2753 LcwW ARMBRUSTER, Peter and LANDE, Russell. (1993). A population viability analysis for African elephant (Loxodonta africana): how big should reserves be? Conservation Biology, 7(3):602-610. Annotation: Age-structured, density dependent model of elephant population dynamics in fluctuating environment drawing primarily on life history parameters obtained from TNP, semi-arid condition studies. Density regulation occurs by changes in age of first reproduction and calving interval. Environmental stochasticity was modeled with drought events affecting sex and age specific survivorship. Results indicate maximum population growth of 3% per year and equilibrium elephant density of 3.1 per square mile. Minimum reserve size of 1,000 square miles necessary to attain a 99% probability of population persistence for 1,000 years [ID-H/M&D].


University, Japan.  

2767 *wvU  

2768 *wxU  

2769 *icW  
Annotation: Decision by international body to permit trade with Japan in ivory from elephants in three African nations expected to put added pressure on dwindling Asian elephants. Though only stockpiled ivory from Botswana, Namibia, and Zimbabwe can be sold, difficulty identifying ivory source put all animals at greater risk. [E/ECM].  

2770 *isW  
Annotation: Findings at Mudumalai Wildlife Sanctuary in southern India by Milind G. Waite and Raman Sukumar show that male elephants with longer tusks have fewer parasites (article in *Current Science*, 72(11):885-888). Sukumar calls the findings the first demonstration of its kind in mammals. Poachers may be weakening elephant gene pool by removing parasite resistant genes from the population. See Reference no. 5635 [E/ECM].  

2771 *hvU  
Annotation: See Reference no. 3720 for details about "Deinsea A 6" [E/ECM/JS].  

2772 *zyU  

2773 *avU  

2774 *bwW  

2775 *uwU  

2776 *dqC  

2777 *bwW  
Annotation: See Reference no. 5112 [E/ECM].  

2778 *mWw  
Annotation: Summarized in *Oryx* 1996, (2)30:95. Largest single population, up to 120,000 animals, roams over area of 100,000 sq km covering parts of Botswana, Zimbabwe and Namibia. Early reports suggest Zimbabwe's past counts accurate. Estimates for GNP are 4,600 while Wild Life Department's July estimate was 4,100 and counts for HNP confirmed population of 22,000 elephants in area experts consider cannot support more than 17,000 [ID-H/M&DR].  

2779 EbcW  

2780 LgjW  

2781 LbzW  
Annotation: *Loxodonta africana*, attacking-humans, behavior, ethnology, KNP [MPK].  

2782 LgkW  
Annotation: Forewords by Iain Douglas Hamilton, John Hanks, Daphne Sheldrick. Over 200 photos of African elephants, history of ivory trade, culling issues; see also review by J. P. Dudley in this issue of *Elephant* [JS].  

2783 EraC  

2784 LraB  

2785 BrqC  

2786 EevB  
Annotation: *Elephas maximus*, interspecific relations, eyes [MPK].  

2787 *icW  
Annotation: African elephant ivory trade ban imposed by CITES. Ineffective over time suggests trade for sustainable yield providing economic returns to countries [ID-H/M&DR].  

2788 *icW  
Annotation: Examines trends in total and net demand for unworked ivory of Japan and Hong Kong during periods of 1950-87 and 1962-87, respectively [ID-H/M&DR].  

2789 *icW  

2790 *icW  

2791 *icW  
Annotation: Southern African countries maintain ivory ban, suggest sustainable management of elephant populations more positive approach to survival and conservation than ivory ban [ID-H/M&DR].


influencing elephant distribution. Elephants relish vegetation in abandoned forest plantations but avoid places where humans are active such as roads, villages, farms, forest areas with hunting [ID-H/M&DR].

2817 LjmW Barnes, Richard F. W. and Barnes, K. L. (1992). Estimating decay rates of elephant dung-piles in forest. African Journal of Ecology, 30(4):316-321. Annotation: Data from dropping decay experiment in Gabon were reanalyzed following findings by workers that decay is not exponential process. Based on assumption of constant age specific decay gave biased estimates of mean decay rate for population of droppings. Best estimate was obtained by weighing decay rate by frequency of dropping in each age class [ID-H/M&DR].


2858 LbnW BEEKMAN, J. H. and PRINS, Herbert H. T. (1989). Feeding strategies of sedentary large herbivores in East Africa, with emphasis on the African buffalo, Syncerus caffer. *African Journal of Ecology*, 27(2):129-147. **Annotation:** Comparison of feeding strategy of buffalo, wildebeest, Burchell's zebra and elephant - carried out in LMNP. Especially in dry season, elephant are time-limited and, presumably to alleviate shortage in energy intake, switch from grazing to browsing. Zebra and wildebeest show high grazing times during the day and little resting time during dry season. If these two species are time-limited at that time of year, it appears to be due to predation risk at night. Buffalo are not time-limited and show two foraging strategies: bulk feeding and selective feeding. They appear to be resource-limited. All 4 species show correspondence in proportion of time spent on food collection. On yearly basis, time spent on foraging plus moving approaches to 80% of (day) time. Feeding strategies are different, though they inhabit same environment and face same shortages [ID-H/M&DR].


2865 LioW BELL, R. H. V., KELSAII, J. P., RAWLUK, M., and AVERY, D. H. (1989). Tracing ivory to its origin: microchemical evidence. *Pachyderm*, 12:29-31. **Annotation:** Animal tissues vary in microchemical composition because of differences in geochemistry transmitted to the animal through food. Fluorescing X-ray spectroscopy and electron beam microprobe were used to measure chemical differences in ivory samples from three protected areas in Malawi and one in Zambia. Details of experimental material such as number of samples, sex and age of elephants are given [ID-H/M&DR].


2875 LjwW BEN-SHARAH, R.aphael. (1993). Patterns of vegetation damage in northern Botswana. *Biological Conservation*, 65(3):249-256. **Annotation:** Elephant induced damage to trees and shrubs that dominated vegetation biomass in 33 sites suggest elephants had more or less random impact on vegetation throughout their range. Proportion of important food plants increased in proximity to water sources. Clear distinction between effects of fire and effects of elephants on different plant species, in CPR and Moremi Game Reserve, Botswana [ID-H/M&DR].


43. **Annotation**: Northern Botswana can sustain well beyond the maximum number (60,000) set in 1991. But, for future conservation, management policies should set desired composition and structure of indigenous plant communities, rather than maintain threshold number of elephants [E/ECM].


2883 BvwB Bergsten, Johannes, Davey, Matt, and Emilsson, Lena. (1997). *A biogeographical and morphological study of the elephants (Order Proboscidea)*. Umed University, Sweden, 37 pp. **Annotation**: Description and determination of taxa within order, especially teeth [ECM].


2885 EbtC Berthaer, Robert. (1997). Way Kambas. *Animal Keepers’ Forum*, 24(6):267-72. **Annotation**: Way Kambas reserve is on southeast coast of Lampung Province on island of Sumatra. Author visited Elephant Training Center and Way Kanan, which holds over 100 elephants, most of which were taken from the wild after episodes of crop raiding or causing injury or death to local residents. Center personnel attempt to train animals for use in forestry operations or as riding elephants or performers [ECM].


Annotation: Poaching of elephants mostly in Africa but also in Asia has been renewed because of the permission to allow “...a limited and very strictly controlled experimental trade in ivory’ from Zimbabwe, Namibia and Botswana to Japan”. “Clever traffickers can obscure the distinction between ‘legal’ and ‘illegal’ ivory, and exploit a fuzzy situation” [EJS].

[137]
lives with a young sheep, so he is never alone, they get along very well [E/ECM].

2926 LmcW Bosie, John. (1989). Counting elephants will not save them. Swara, 12(3):13-14. Annotation: Change in emphasis of elephant research in recent decades; suggests emphasis on counting populations would be better redirected to anti-poaching efforts [ID-H/M&DR].


2928 LgiW Bosman, Paul and Hall-Martin, Anthony [J.]. (1994). The Magnificent Seven and the other great tuskers of the Kruger National Park. Human & Rousseau, Cape Town, South Africa, 70 pp. Annotation: Paintings and sketches focused on large tusked males in KNP over last few decades. Outlines life histories of the original seven large tusked bulls in KNP, provides topological information on habitat and dietary preferences, physiological data, tusk records, growth and wear, elephant census and culling procedures as well as poaching. Notes other individuals that may keep up record the Park has for large tuskers [ID-H/M&DR, MPK].


2933 LmcW Bowler, M. (1995). The aerial census of elephant and other large mammals in north-west Matabeleland, Zambezi Valley and GNP, August-October 1993, including data on pans in Hwange National Park, baobabs in the Sapi Safari Area and ostriches. Dept National Parks and Wild Life Management, Harare, Zimbabwe, 45 pp. Annotation: Estimated 38,864 pans in HNP. In September, after heavy rain, they censused pans and found 5600± with water + 33,100± without water, i.e., nearly 39,000 pans in HNP, or approximately 2.8 per square km {Can get paper from Maggie Taylor, DNPWLM Library, Harare} [MPK]. Survey was first in Zambezi Valley since 1989 and in Gonarzhou, first since 1991. In HNP, there appears to be a significant decrease in numbers of elephant, 22,548 as compared to 1992 estimate of 35,793. No significant changes in elephant populations in other areas. Estimated populations included Zambezi Valley 14,361, GNP 5,241 and Matabeleland North outside HNP - Matetsi 4,248, forests 815 and communal lands 230, giving a total estimate of 47,443 for area [ID-H/M&DR].


2949 LbpC BROCKETT, R. C., STORNS, T. S., BLACK, J., MARKOWITZ, T., and MAPLE, T. L. (1999). Nocturnal behavior in a group of female African elephants. *Zoo Biology*, 18:101-109. **Annotation:** Suggest that the use of no restraint is an effective strategy for this elephant group, and that zoos could permit increased activity and social interaction by extending the hours when the elephants are unchained [EJS].


2951 LuwW BROYD, J. (1994). Border path is deadly for trio of elephants. *New York Times* (Science:20 December):page not provided. **Annotation:** Three bulls from ANP wandered into Tanzania and were shot by ‘hunters’. See Reference no. 5745 [MPK].


2957 LoeU BROWN, Gardiner, Jr. (1989). The viewing value of elephants. In *The ivory trade and the future of the African elephant* (coord. S. Cobb), Vol. 2, Technical Reports, Section 4.5. The Ivory Trade Review Group, Oxford. **Annotation:** Premise is one way to stem poaching and illegal trade in ivory is to demonstrate value of live elephants to tourism. Looks at economic benefits in two forms: direct value in money tourists pay to see animals inclusive of employment, profits within safari operations, and value of consumable items tourists buy. Results from Tour Operators Survey are presented in Appendix A while proposed questionnaire for park visitors in Kenya comprises Appendix B [ID-H/M&DR].

2958 LucU BROWN, Gardiner and HENRY, Wes. (1989). *The economic value of elephants*. London, IIED (International Institute for Environment and Development). LEEC Paper, 89-12, 18 pp. **Annotation:** Questionnaire based study to assess effect further poaching might have on monetary value of viewing and photographing elephants from tourist and tour operators viewpoint in Kenya. Tourists indicated that viewing and photographing of elephants account for 13% of safari experience. They would pay an extra 100 dollars each for viewing of elephants if such money went directly for elephant conservation. 31% of tourists said they would no longer come or recommend destination if elephant population declined by another 50% [ID-H/M&DR].

2959 BroC BROWN, Janine. (1998). The need for routine elephant blood draws. *Animal Keepers' Forum*, 25(9):357. **Annotation:** To achieve a self-sustaining captive population of elephants, zoos need to become active in developing breeding programs. The ability to assess the reproductive status of elephants can be accomplished by measuring the concentration of progesterone or testosterone in blood samples collected from an ear vein on a weekly or bi-weekly basis [E/ECM].

2960 BrdC BROWN, Janine L. (1999). Difficulties associated with diagnosis and treatment of ovarian dysfunction in elephants - the flatliner problem. *The Elephant Managers Association*, 10(1):55-61. **Annotation:** Many female elephants of reproductive age are not cycling normally. They are termed “flatliners” because serum progesterone remains at stable, baseline concentrations (an indicator of ovarian inactivity) [E/ECM].


2970 LcmW BRUGIERE, David. (1996). State of wildlife and national parks in northern Cameroun [Situation de la grande faune et des parcs nationaux au nord-Cameroun]. *Nature et Faune*, 12(1):2-13. **Annotation:** Northern Cameroun has significant concentration of large mammals officially protected. Faro National Park, the largest, contains about 60 elephants, Benoue Park zone about 1,600. Estimated elephant...
population in Cameroun in 1962 was 250 and in 1988 stands at 800. Some elephants migrate between KalNP and WNP. In spite of brush me hunting and land use conflict, WNP is still one of the best locations to observe wildlife in West Africa, especially elephants, often seen in herds of more than 100 [ID-H/M&DR].


Annotation: A compendium containing invaluable resources for articles, books, and other literature on the national parks in South Africa. There are 280 citations given for "Order Proboscidea, Family Elephantidae, African elephant (Loxodonta africana) [IS].


Burtson, John A. (1994). Disposal of confiscated ivory. Oryx, 28(4):219-221. Annotation: Suggests that ivory is a commodity in its own right and it would be useful to control its trade to assist in cost of conservation efforts of range states, but set prices to make it uneconomical for poaching and subsequent illegal trade to exist [ID-H/M&DR].

Burtton, M. P. (1994). Alternative projections of decline of the African elephant. Biological Conservation, 70(2):183-188. Annotation: That elephant populations will become extinct in the near future is inevitable consequence of the assumption that the level of effort used to hunt elephants increases exponentially. An alternative model links level of effort to theory of open access exploitation of resources results in elephant numbers declining significantly, but not to extinction. Divergence of results shows it is vital to have good understanding of economic forces underlying exploitation of elephants to make projections [ID-H/M&DR].


2997 *avU BYERS, Johnny. (1997). Chaos and order. TCAS Benchmark (Tarrant County Archeological Society), 11(4):3-4. Annotation: Partial excavation of Carr mammoth in Texas, March 15-22, 1997. Workers cast and remove mandible and scapula, expose the maxilla, tusks, and ribs. All were covered with protective coat of plaster and left in place. Future goals include finding the bottom of the bone bed and removing all of the bone that is in danger of being lost [E/ECM].


3000 BhiB CALDWELL, John R. (1991). The recent history of the ivory trade. In Proceedings of The Fifth Elephant Workshop, hosted by Windsor Safari Park, Windsor, United Kingdom, 20 September 1991, pp. 6-11 + 8 unnumbered pp. of figures. Annotation: Average tusk weight dropped from over 10 kg in 1979 to 6 kg in 1982 and to 4.5 kg by 1986, indicating that more elephants were being killed to supply a trade that was rapidly increasing. In the early 1980’s, the main routes of ivory out of Africa were via Sudan and southern Africa to Hong Kong and Europe and from Burundi via Belgium and France. The writer describes the loopholes in CITES and specific country legislation that are exploited by ivory traders to circumvent controls and effect supply of, and demand on, price of ivory [ID-H/M&DR].


3009 LuvW CAMPBELL, A. C. (1990). History of elephants in Botswana. In The Future of Botswana's Elephants (ed. P. Hancock), pp. 5-15. Proceedings of Kalahari Conservation Society Symposium on Elephants (Gaborone, Botswana, 10 November 1990), 96 pp. Annotation: Decline of elephants throughout 19th century. By 1890, populations were probably at all time low. By 1900 foreigners had to obtain license to hunt elephants and Botswana required permission from kgosi or chief. Present century has seen re-establishment, but probably not significant re-expansion, of elephants in areas formerly cleared [ID-H/M&DR].


3011 LejW CAMPBELL, David G. (1991). Gap formation in tropical forest canopy by elephants, Oveng, Gabon, Central Africa. Biotropica, 23(2):195-196. Annotation: Study tests hypothesis that forest elephants (Loxodonta africana cyclotis / Loxodonta cyclotis) trails create light gaps (i.e., sunrays penetrate to forest floor and help establish plant species in areas in which they may not exist). Data indicate that elephants are gap builders and, given antiquity of trails, gap maintained in tropical forest in Oveng area and almost certainly elsewhere. Elephants contribute to heterogeneity of forests, therefore may enhance species richness. Keystone species role of elephants demonstrated [ID-H/M&DR].

3012 LmwW CAMPBELL, Kenneth L. I. (1990). Aerial surveys, wet and dry seasons, 1990. Conservation Monitoring News, 2:5. Annotation: Compares 1990 wet and dry season aerial survey large mammal counts (Greater RNP) with those for elephant of 1987 and 1988. Estimate for March wet season was 17,341, for September dry season, 12,420. Lower than previous skeleton count, which because of vegetation can only be carried out during dry season flights, suggests poaching has slackened. 1990 estimate of 2,424 skeletons compared favorably against 1987 estimate of 8,849 [ID-H/M&DR].


Capstick, Peter Hathaway. (1988). *The last ivory hunter: the saga of Wally Johnson*. St. Martin’s Press, New York, xix + 220 pp. **Annotation:** Wally Johnson spent half a century in Mozambique hunting ivory. He’s the last one able to tell his story [EBDA].

Capstick, Peter Hathaway. (1991). *Sands of silence: on safari in Namibia*. St. Martin’s Press, New York, 214 pp. **Annotation:** Colorfully illustrated (photographs by M. Phil Kahl), “reports on Bushmen’s culture, their political persecution,” a large bull elephant, and how “ethical” hunting may be a tool for game protection and management (via revenues obtained). “Only if elephants are worth more to the people who share their territory with them than a poacher will receive for their ivory, will elephants and rhinos be truly safe” [JS].


Cater, Nick. (1989). Preserving the pachyderm. *Africa Report*, 34(6):45-46, 48-49. **Annotation:** “Is strict preservation through banning the ivory trade or conservation through controlled culls the best way to save the African elephant? The two schools have locked tusks in a battle over the new CITES ban, which pits the southern African states against the rest of the world” [E/ECM].


Cater, Nick. (1989). Preserving the pachyderm. *Africa Report*, 34(6):45-46, 48-49. **Annotation:** “Is strict preservation through banning the ivory trade or conservation through controlled culls the best way to save the African elephant? The two schools have locked tusks in a battle over the new CITES ban, which pits the southern African states against the rest of the world” [E/ECM].

Caughley, Graeme. (1988). A projection of ivory production and its implication for the conservation of African elephants. CSIRO Division of Wildlife and Ecology, Australia. Manuscript on file at CSIRO’s office. Cover page + 21 pp. **Annotation:** Predicts elephants, within a few years, will be found only in high security areas. Says lead time is very short and, practical conservation measures must be effected quickly [ID-H/M&DR].

Caughley, Graeme. (1993). Elephants and economics. *Conservation Biology*, 7(4):943-945. **Annotation:** Elephant focused example is inappropriate because elephant usage in Zimbabwe CAMPFIRE program is far from private ownership of resource, nor do southern African countries fully experience private ownership of such resources [ID-H/M&DR].


3043 LcwW CHADWICK, Douglas H. (1996). A place for parks in the new South Africa. *National Geographic*, 190(1):2-41. Annotation: After the long struggle against apartheid, South Africa faces the challenge of balancing the needs of a park system that is the envy of the world with those of a poor and land-hungry people [E/ECM].


3048 LwuW CHANDA, Glory and TEMBO, Ackim. (1993). The status of elephant on the Zambian bank of the middle Zambezi Valley. *Pachyderm*, 16:48-50. Annotation: AFESG meeting, Victoria Falls, Zimbabwe, November 17-22, 1993: Scientific presentations. Elephant population in middle Zambezi has been one of the heavily affected by hunting in Central Africa. Since the 15th Century, when Portuguese invaded the area, the elephants have never recovered from legal and illegal hunting. In 1991 a survey covering 1,270 sq. kms revealed a total of 359, almost half the number which existed in 1970. Results revealed high illegal off take and inadequate policy by wildlife authorities [ID-H/M&DR].


3055 BabB CHARIF, R. A. (1993). The sounds of silence. *Wildlife Conservation*, 96(2):44-47. Annotation: Attempts to understand how elephants communicate. Combination of low frequencies and high frequency sounds are both deadly to human ears may be heard by elephants miles away and may, among other things, signal when a female is in estrus [ID-H/M&DR].


exploited [E/ECM].


3069 BbeB Chevalier-Skolnikoff, Suzanne and Liska, Jo. (1993). Tool use by wild and captive elephants. Animal Behaviour, 46(2):209-219. Annotation: Tool-use potentials of captive African and Asian elephants and wild African elephants, explores ecological and evolutionary significance of behavior. Comparisons of type and amount of tool use between captive and wild elephants and with other known tool-using mammals is offered as means to evaluate evolutionary significance of such use. In elephants, tool use may serve as adaptations enabling these furless, large bodied tropical land mammals to better cope with ectoparasites and thermoregulation [ID-H/M&DR].


3071 LcuW Child, Brian. (1993). A perspective from Zimbabwe: the elephant as a natural resource. Wildlife Conservation, 96(2):60-61. Annotation: Under Zimbabwe CAMPFIRE program, attempt to sustain wildlife through income producing activities such as tourism, trophy hunting and culling for meat, skin and ivory. Only by giving landholders ownership rights, will elephant population be maintained. Argues against ivory ban and for culling [ID-H/M&DR].

3072 LcuW Child, Brian. (1995). A summary of the marketing of trophy quotas in CAMPFIRE areas, 1990-1993. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 32 pp. Annotation: Summarizes quotas and prices received by each district. Most quotas increased moderately and are probably as high as they should be. Increase in elephant quotas is deceptive since, prior to 1992, animals killed on PAC (problem animal control) were not included in quota. Number of elephants shot fell since CAMPFIRE principles promoted. Prior to CAMPFIRE, 150-250 elephant bulls were shot annually in PAC compared to total offtake in 1993 including trophy hunting and PAC of 126 [ID-H/M&DR].


3074 LcuW Child, Graham and White, John. (1988). The marketing of elephants and field-dressed elephant products in Zimbabwe. Pachyderm, 10(6-11. Annotation: Ivory trade had marked influence on African politics during 19th Century and left a deep rooted, ill-defined mistrust of ivory dealings. Value of elephant as source of food, raw material; ivory stands as most important raw material. Methods of trading are noted, such as public tender and auctions. Values and use of hide, other parts, derivatives, whole carcasses, live animals, trophies [ID-H/M&DR].


3080 EgeW Choudhury, Anwaruddin. (1998). Mammals, birds and reptiles of Dibru-Saikhowa Sanctuary, Assam, India. Annotation: Author encountered elephants throughout sanctuary; estimated population range of 150 to 400, due to movement between reserves. Census by Forest Department in March 1993 using direct count method found 131 elephants [E/SLS].


3090 LrbW CHURCH, A. H. V. (1992). The birth of an elephant. *Swara*, 15(5):1. **Annotation:** Birth experience of wild elephant in MMGR. Cow was unattended by other animals during birthing sequence of approximately an hour. Within two hours of initial signs of birth trauma, calf was mobile and the female urged it to follow her [ID-H/M&DR].


3093 LucW CLARK, Bill. (1997). On anti-poaching patrol with FoA's "Bunny Hugger". *ActionLine*, Summer, 1997:16-19. **Annotation:** "We have swooped into prime poaching habitat during prime poaching season — and come up empty-handed. The poachers simply weren't there. If this is so, then Bunny Hugger is accomplishing her most important assignment: driving the poachers out of Mole National Park [Ghana]" [E/ECM, p. 19].

3094 BiuW CLARK, Bill. (1998). A treaty is weakened...and 'children' pay the price. *ActionLine*, Fall, 1998:6-10. **Annotation:** Since CITES relaxed world-wide ban on ivory trade in mid-1997, a horrible wave of poaching has surged through elephant habitats of Africa and Asia. If a [poached] mother has a child beside her, an easy second shot can boost the profit. A tuskless infant will simply be left to starve [E/ECM].

3095 LswW CLARK, Bill. (1999). Taking wing to save those on the ground. *ActionLine*, Winter, 1999:8-11. **Annotation:** A patrol airplane, donated by Friends of Animals, is intended to discourage hunters and provide an improved measure of protection for elephants and 55 other species of large mammals and 378 species of birds [E/ECM].


3105 LaoW COETZEE, E. M., VAN DER BANK, F. H., and CRITSER, J. K. (1993). Allozyme variation in a wild African elephant (*Loxodonta africana*) population from the Kruger National Park, South Africa. *Comparative Biochemistry and Physiology, 106B*(1):109-114. **Annotation:** During culling program of April 1992, blood, liver, heart, testis, eye, muscle and kidney samples were obtained from KNP elephants. Gene products of 25 protein coding loci were examined by horizontal starch-gel electrophoresis. Eighteen protein coding loci or 72% displayed monomorphic gel banding whereas only seven or 28% displayed polymorphic gel banding patterns. Relative gene diversities between and within populations was 84% and 16%, respectively. Findings suggested that, although the population in KNP is in a relatively healthy genetic condition, existing culling methods should be adapted to prevent further loss of genetic variability [ID-H/M&DR].


3110 BclW COHN, Jeffrey P. (1990). Elephants: remarkable and endangered. *BioScience*, 40(1):10-14. **Annotation:** Scientists and government officials have recently banned most trade in ivory. This action and that of individual governments and conservation groups give hope wanted slaughter may be halted [E/ECM].


3118 *evU Comfort, Marianne. (1998). Old bones: State Museum restorers give new look to Ice Age relic. New York State Conservationist, 52(4):8-11. **Annotation**: Paleocology of Ice Age animals in New York area and Americas about 10,000 years ago, includes mammoth, mastodon, woodland bison, muskox, dire wolf, ground sloth, giant beaver, modern beaver, wild turkey. Coebo Mastodon skeleton is mounted in New York State Museum, Albany, New York, USA. On p. 9, author explains why she chose term “mastodon” for American mastodon. It has been suggested to use “mastodon” (without the “t”) instead of “mastodont” to differentiate it from past spelling, which implied a more inclusive and phylogenetically heterogeneous group of taxa (after Shoshani and Tassy, 1997, p. xxix). For example, many gomphotheres, which belong to different lineages and families from the American mastodon (family Mammutidae), were once designated as “mastodont”; it has become confusing, and that is the main reason for usage of “mastodon” only for the American mastodon [JS].


3120 LiuW Conniff, Richard. (1987). When the music in our parlors brought death to darkest Africa. Audubon, 87(7):76-93. **Annotation**: Accounts of factories on Connecticut River which were major US consumers of ivory from about 1860 to 1930 and some of the history of ivory trade in Africa over that period [SL5].


3122 LcW Contreras, Joseph. (1993). Pack your trunk and off you go. Newsweek [December 6], page 65. **Annotation**: Transportation of elephants from GNP to parks in South Africa and Zimbabwe.


from their molars, after Laws (1996), see Reference no. 676; chapter 12 “Veterinary notes” includes a diagram with internal anatomy of the elephant [JS].


3136 *avU COURT, Nicholas. (1992). Cochlea anatomy of Numidotherium koholense: Auditory acuity in the oldest known proboscidean. Lethaia, 25:211-215. Annotation: Numidotherium apparently was able to hear high frequency sounds, unlike extant taxa that can hear low frequency sounds [JS].

3137 *nbU COURT, Nicholas. (1993). A dental peculiarity in Numidotherium koholense: evidence of feeding behavior in a primitive proboscidean. Zeitschrift für Säugetierkunde, 58:194-196. Annotation: This straightforward observation of abrasion on teeth illuminates at least one aspect of food procurement behavior in the earliest of proboscideans, and indicates that Numidotherium likely specialized in browse occurring at or above head height. Since bilophodonty is associated with the comminution of leaves, it is not inconceivable that numidotheres utilized the described behavior to strip leaves from slender branches [E/ECM].


3139 *apU COURT, Nicholas. (1994). The periotic of Moeritherium (Mammalia, Proboscidea): homology or homoplasy in the ear region of Tethytheria McKenna, 1975 Zoological Journal of the Linnean Society, 112:13-27. Annotation: “...the presence in Moeritherium of a suite of periotic characters more derived than those in Numidotherium undermines the primitive status of moeritheres relative to numidotheres and all other Proboscidea, and therefore weakens the hypothesis of a secondary reversal to a more primitive auditory region in Numidotherium” [E/JS, p. 13].


3141 *avU COURT, Nicholas and JAEGER, J.-J. (1991). Anatomy of the periotic bone in the Eocene proboscidean Numidotherium koholense: an example of parallel evolution in the inner ear of tethytheres. Comptes Rendus de l’Academie des Sciences, Paris, 312, Serie II:559-565 [In French and English]. Annotation: “The recent proposition that elephants and sea cows evolved from a unique common ancestor which lacked a fenestra cochleae in the pars cochlearis of the periotic, is therefore refuted. Similarities in the ear region of sea cows and elephants are demonstrated to be the result of homoplasy, thus weakening the concept of Tethytheria” [E/JS].


3146 Lmww CRAG, G. Colin. (1993). Options for aerial surveys of elephants. Pachyderm, 16:15-20. Proceedings of the African Elephant Specialist Group meeting, Victoria Falls Zimbabwe, Nov. 17th-22nd 1993: Plenary paper one. Annotation: In most areas where elephants occur, aerial surveys are only means used to establish numbers. Most common methodology is systematic reconnaissance flight or transect sample count which has been criticized as inadequate. Other methods to supplement standard methodology are reviewed [ID-H/M&DR].

3147 Lmww CRAG, G. Colin. (1995). Requirements for prediction of the tree/elephant equilibrium in Zimbabwe. In A week with elephants (ed. J. C. Daniel and H. S. Dayte), pp. 497-508. Bombay Natural History Society/Oxford University Press, Bombay, 535 pp. Annotation: Measurements of rates of tree loss in variety of vegetation types demonstrate that elephants and woodlands cannot be expected to coexist over most of elephant range in Zimbabwe, where average elephant densities exceed 1 per sq km. Model predictions suggest woodland canopies could be expected to persist at lower but still viable elephant densities of about 0.2 per sq km. Required elephant density probably lies between these two figures [ID-H/M&DR].


National Parks and Wildlife Management, Harare, Zimbabwe, 9 pp. **Annotation:** Foreign trophy permit forms analyzed to evaluate sport hunting trends between 1987-1992. Mean mass for each pair tusks used unless one was missing or very dissimilar in size so tusk mass for individual tusk of animal taken using larger one only [ID-H/M&DR].


3169 LicB CURLEY, Dave. (1989). The risk of further compromise at CITES. *The Animal Welfare Institute Quarterly, 38*(2):1, 4. **Annotation:** “Secretariat fails to support a ban on trading in ivory” [E/ECM].


EryW 3190 Erwey, Suzanne. (1997). Park uses contraception, not killing, to keep elephants in check. The New York Times. July 22:C3. **Annotation:** At KNP, an experiment is under way to see if park’s elephant population can be kept under control with contraception [E/ECM].


Lmw 3192 Damiba, Theophane Eugene. (1994). Chewing of bark by elephants: pastime or medicine? Pachyderm. 18:54. **Annotation:** Observations during study of elephant impact on woody vegetation (in NGR) noted animals frequently stripped and chewed, but did not swallow bark, particularly from Lannea species. Possibility of elephants treating themselves for poisonous plants, as these species used by people to treat cases of food and beverage poisoning [ID-H/M&DR].


LcwW 3194 Damiba, T. Eugene and Ables, Ernest D. (1994). Promising future of an elephant population: a case study in Burkina Faso, West Africa. Oryx. 27(2):97-103. **Annotation:** NGR, established in 1979, only one of its kind in country, succeeding in reconciling wildlife conservation with needs of local people. Ranch is refuge for elephants escaping harassment elsewhere, but some problems for local people whose crops suffer elephant damage. Despite this, many villagers welcome proximity of ranch and elephants. While still problems to be solved and funds needed, ranch is excellent model for conservation action [ID-H/M&DR].

Diagrams of elephant facility, consisting of three cow yards, one bull yard, a barn and large pool [ECM].


3229 LbwW  DE BOER, Willem F. and PRINS, H. H. T. (1990). Large herbivores that strive mightily but eat and drink as friends. Oecologia, 82:264-274. Annotation: Observations of grazing interactions among four large herbivores: elephant, African buffalo, Burchell’s zebra and wildebeest in LMNP concluded small habitat overlap associated with interspecific competition and large overlap associated with symbiosis. On daily basis, buffalo and elephant visits occur randomly. With simultaneous arrival, they seem to compete. When buffalo grazed prior to elephants’ arrival, the latter’s consumption was lowered. Clear negative influence of grazing pressure by buffalo on that of elephants in this restricted area [ID-H/M&DR].
3237 LiuW  DE MEULENAER, Tom and MEREDITH, Martin. (1989). The ivory trade in Zaire. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 2.6. The Ivory Trade Review Group, Oxford. Annotation: Zaire has one of the largest elephant populations. Large amount of ivory obtained in this area. Much trade is illegal. Little ivory is recorded as exported from the country itself. Most leaves Africa via of Chad, Cameroon, Nigeria, Ethiopia and various West African countries. Ivory Coast carving industry is supported by Zairean raw material. As much as 36% of all raw ivory exported from Africa in 1980s originated in Zaire [ID-H/M&DR].
3238 ——— Reference of DE SILVA deleted, see Reference nos. 5184 and 5185.
3240 EewW  DE SILVA, M. (1998). Status and conservation of the elephant (Elephas maximus) and the alleviation of man-elephant conflict in Sri Lanka. Gajah, 19:1-78 [in English and Sinhala]. Annotation: Special issue: man-elephant conflict in Sri Lanka. In long-term conservation planning, elephants should be considered a biological species that evolves. Needs of elephants should be considered, but peoples’ needs also. Goal should be to maintain elephant population at present level. Traditional human activities could continue as long as they do not interfere with welfare of the elephants [EC].
free-ranging elephant. *South African Journal of Wildlife Research*, 21(1):23-27. **Annotation:** Estimation of ‘bite’ size formed basis of technique to sample food consumption of free-ranging bull elephants on private ranch bordering KNP. Two and three-dimensional measurements of leaves and bark eaten can be determined directly from branches and roots, in some cases indirect measurements can be taken from similar plant structures in immediate vicinity [ID-H/M&DR].


3279 *vjU DIAMOND, Jared M. (1987). Did Komodo dragons evolve to eat pygmy elephants? *Nature*, 326(April, 1987):832. *Annotation*: There is no paleontological evidence for hypothesis that Komodo dragons (*Varanus komodoensis*) consumed pygmy stegodons (*Stegodon trigonocephalus florensis, S. sompoensis, S. timorensis*), about 1.5 meters tall, although they have been observed to prey on large mammals such as deer. Author relies mainly on work of Auffenberg (1981, cited in article), who inferred that this lizard, an ambush feeder, probably grew to be the largest living lizard (up to 3 meters long, over 100 kg in weight) as evolutionary pressure of predators with size of prey [JS].

3280 *vjU DIAMOND, Jared. M. (1992). The evolution of dragons. *Discover*, 13(12):72-77, 80. *Annotation*: Interesting thesis on cost and gain of thermoregulation. In Indonesia, the giant, cold-blooded, mammoth-eating monsters have not only survived, they’ve climbed to top of carnivore heap. Author says they may have eaten pygmy proboscideans (species of extinct ‘elephant’). See Reference no. 5264 [ECM].


3284 BnP BIERENFELD, Ellen S. (1994). Vitamin E in exotics: effects, evaluation and ecology. *Journal of Nutrition*, 124(125), Supplement 12:2579S-2581S. *Annotation*: “Numerous cases of vitamin E deficiency have been diagnosed in zoo and wildlife species... Vitamin E status in captive and free-ranging animals is assessed from circulating plasma α-tocopherol (α-toc) levels using high performance liquid chromatography (HPLC) techniques.” Elephants and rhinos on p. 2580S [E/ECM, abstract].


3292 LiuW DI SILVESTRO, Roger L. (1992). Hatari, watembo: Africa’s elephants at risk. In *Rebirth of nature: new hope for endangered habitats*, pp. 197-228. John Wiley & Sons, New York. *Annotation*: Focuses on African elephants whose population has declined by 50% continent wide, as much as 95% in some areas. Elephants were killed by poachers to supply ivory markets primarily in Japan, United States and Europe. Loss of elephants could have dramatic impact on tourism, especially in Kenya and Tanzania, and may affect rapidity with which trees and shrubs encroach savannas emptied of elephants [ID-H/M&DR].


other blocks. Adult sex ratio was 1:2.1. No tuskers were seen, possibly due to guerrilla activity and poaching [JLP].

3298 LcwW

3299 *avU

3300 EcwW

3301 LeuW
Dorson, Andrew P. and Poole, Joyce H. (1992). Ivory: why the ban must stay! Conservation Biology, 6(1):149, 151. Annotation: Assesses range states’ ability to control elephant poaching and ivory trade if ban were lifted for southern African countries. Suggests economic analysis, as written in “Elephants, economics and ivory”, by Barbier et al. (Reference no. 2792) does not take into account population dynamics of elephants, relationship between legal and illegal ivory or difficulties of law enforcement at all levels of trade [ID-H/M&DR].

3302 *gvU
Doming, Daryl Paul. (1996). Bibliography and index of the Sirenia and Desmostyliia. Smithsonian Contributions to Paleobiology, 80:1-611. Annotation: Most comprehensive, up-to-date bibliography on these mammalian orders. Includes proboscidean taxa [JS].

3303 BjwW

3304 EcwW
Doris Day Animal League. (1990). Elephants in our midst: the fight to end zoo abuse. Animal Guardian, 3(2):5-6, 7, 10. Annotation: Elephants are less than safe in captivity; there has been steady increase of allegations of elephants being mistreated in U.S. zoos and circuses [ECM].

3305 EcwW

3306 LraW

3307 LiuW

3308 LcwW
Dougerty, Nigel. (1994). Nigeria’s elephants: characterizing pachyderm problems in West Africa. Swara, 17(2):25-27. Annotation: “Like many West African countries, Nigeria’s fragmented populations of cyclotiform (forest) elephants still live in a few patches of what is left of the region’s unique and exceptionally beautiful low-land Guinean rainforest” [E/ECM]. Prospects for survival of remaining small isolated elephant herds in Nigeria are examined. It is concluded that only elephants in five of ten areas are likely to survive because of human population pressure and habitat loss due to logging, farming and hunting. Population most likely to survive is in YGR in Bauchi State with a herd of 400 [ID-H/M&DR].

3309 LlwW
Douglas-Hamilton, Iain. (1988). Elephant monitoring and conservation. GRID News, 1(3):4-5. Annotation: Continuing international effort to monitor African elephant population since 1976 culminated with geo-referencing of these populations into GIS database housed in GRID offices of UNEP. Outlines overall loss of elephant populations due to ivory poaching, suggests that ability to monitor populations on geographical region, country and area basis holds hope for international action, may stem loss of population and provide needed assistance to countries to maintain this species [ID-H/M&DR].

3310 LiuW
Douglas-Hamilton, Iain. (1988). The great East African elephant disaster. Swara, 11(2):8-11. Annotation: Reports on decline of elephant in East Africa due to poaching for ivory between 1973 and 1987. In Uganda from 17,600 to 1,800, in Kenya from 130,000 to 19,000, in Tanzania from 185,000 to 87,000. In Uganda the fall was most dramatic in early 1970s when Amin’s men looted national parks for ivory. In Kenya, number of elephants lost was slower but greater in numbers, while in Tanzania, although collapse started later, actual numbers lost was the largest [ID-H/M&DR].

3311 LiuW

3312 EcwW

3313 EcwW

3314 EcwW

3315 EcwW

3316 LmwW


3326 ——— Reference deleted.


Annotation: Habitat, social relations, behavior, ecology, weather, food [MPK].


3347 LiuW DUBLIN, Holly T. and JACCHMANN, Hugo. (1992). The impact of the ivory ban on illegal hunting of elephants in six range states in Africa, 31-33. World Wildlife Fund International Research Report, Gland, 75 pp. Annotation: This assessment of impact of ivory ban on elephant poaching focuses on major conservation aspects of six target countries: Zambia, Tanzania, Malawi, Cameroon, Ivory Coast, and Zaire. Data collected on law enforcement and rates of elephant poaching before and after ban. Though not statistically significant, there were noticeable decreases in poaching levels in five of the countries with Malawi having an increase. Finding is that where resources for law enforcement have significantly increased and properly channeled, poaching declined, however, donor funding to maintain such work has not continued and lower budgets result. Evidence of some illegal ivory trade noted in all six countries, but on dramatically reduced scale. Data collected on ivory scanty and sometimes contradictory. Study was unable to statistically demonstrate effects of ban, but have been some qualitative results which could be referred to as psychological impacts of the ban [ID-H/M&DR].


3350 LiuW DUBLIN, Holly T., MILLIKEN, Tom, and BARNES, Richard F. W. (1994). Four years after the CITES ban: illegal killing of elephants, ivory trade and stockpiles. Gland, IUCN/SSC/AFESSG, iv + 110 pp. Annotation: Assessing impact of ivory ban focus on analysis of illegal killing of elephants, review of national legislation on elephants and ivory, evaluation of current levels of illegal trade in and ivory stockpiling. Though focused on Zimbabwe, Kenya, Tanzania, Cameroon, Malawi, Zambia, Gabon, Ivory Coast, and Nigeria, the situation in 16 other range states was broadly examined through postal questionnaires and discussions. Information collected for period 1988-1993 to allow for pre and post ban comparisons. Six countries provided quantitative data on carcass numbers; data from five allowed for calculation of carcass density. Trends between pre-ban and post-ban periods varied and mostly inconclusive. Seems international ivory trade ban has not halted illegal offtake of elephants. Continued loss a result of inability of range states to protect them. In terms of sound legislation and general enforcement of wildlife laws, central and west African countries lag behind east and southern range states. Ivory stockpiles are increasing, effective policy action needs to be taken in storage, maintenance and disposal. Human-elephant conflict increased [ID-H/M&DR].


Reviews multiple land use model with respect to elephant conservation noting need for economic development, land use management and mitigation of human-elephant conflicts [ID-H/M&DR].

Differences between Russian and Dutch fossil elephant finds, review of correlations of Plio-Pleistocene of Soviet Union and that of Pleistocene in Western Europe [E/ECM, summary].

Three sites currently isolated from contact with other elephant populations. Poaching not a problem at present. Elephants often damage food crop in farms bordering reserves, but do not damage orchard crops [ID-H/M&DR].


*Loxodonta africana).*
In 1968, fire regime of the area altered when local people left. Flooding regime changed with closure of Kariba Dam. Tree population declined due to low recruitment and loss of canopy trees at a mean rate of 0.9% per year. Absolute mortality rate of trees was density-dependent; mortality did not vary in relation to temporal changes in elephant density. At end of 1961 dry season, there was almost continuous ground cover of dead grass, by 1980s, dry season ground cover was much lower, often negligible. Before 1958, fire and large mammals were principal consumers of herbaceous layer, but after 1958, *Macrotermes* sp. mound density increased; terms and large mammals are now main consumers [ID-H/M&DR].

**References**


- **DU TROT, J. G. (1994).** The introduction of elephant family units on game ranches and reserves in the Republic of South Africa. Du Toit Game Services (Pty) Ltd, Pretoria, 10 pp. **Annotation:** Experience gleaned from relocation of 144 elephants from 18 family units in KNP to nine protected areas within general area are reviewed. In two cases, animals broke out of reserves soon after introduction; three animals were shot on reserves leaving a total of 141 successfully introduced [ID-H/M&DR].


- **EISENBERG, John F. (1988).** Review of “Elephant memories: thirteen years in the life of an elephant family” by Cynthia Moss, published...


EKORO, Atanga. (1995). Elephants in the Lobéke forest, Cameroon. Pachyderm, 19:73-80. Annotation: Results of dung counts by line transect ground surveys to ascertain density of elephant in Lobéke forest area. Data along with ecological surveys and other information is being utilized to assess value of forest area as a reserve [ID-H/M&DR].


ELLERTON, Nick. (1997). Working elephants in Myanmar. Zoo Life, Autumn, 1997:16-17. Annotation: 5,800 captive elephants in Myanmar, 2,800 owned by Myanmar Timber Enterprise, subsidiary of Ministry of Forestry. Only elephants over age 17 drag logs, subject to very strict working practices. At end of day, elephants released in forest to forage. The oozie may walk several miles next day to find his elephant [E/ECM].


Annotation: Additional comments on the effective use of electric fencing with wild elephants, including an assessment that the success rate has been 95-100% [SLS].

ELLIS, R. and JACKMAN, B. (1989). Slaughter that shames mankind. Sunday Times (London) [8 October 89]. Annotation: Meeting in Amsterdam, preceding 1989 CITES meeting in Lausanne, Switzerland — failure of previous CITES 'ivory policy' — 100,000 elephants killed each year, 90% by poachers who earn equivalent of year’s wages with single tusk [MPK].


ELTRINGHAM, S. Keith. (1991). The elephant problem. In African wildlife: research and management (ed. F. I. B. Kayanja and E. L. Edrorna), pp. 93-97. Proceedings of an international symposium, 8 - 11 December 1986. Kampala, Uganda. Paris, ICSU. Annotation: Large size, destructive feeding habits of elephants lead to habitat deterioration. Elephant problem stems from population overcrowding due to increasing land requirements by human population. Solutions, including culling, are examined. Recent decrease in elephant population due to illegal hunting for ivory has changed nature of the elephant problem. It is now one of ensuring survival of the species. If they are to survive, it will be in confined land areas such as national parks, thus effective management of them and their habitat will be necessary for sustainability [ID-H/M&DR].


footprint measurement references, noted assessments on changes in folding of ears and facial appearance. Aging by teeth, ear, and eye lens weight, which require carcasses rather than live specimens. Causes of death, other than age [ID-H/M&DR].


3433 LnwW  FALCONER, A. (1992). Geographic information technology fulfills needs for timely data. GIS World, 5(6):36-41. Annotation: Remote sensing facility at Regional Centre for Services in Surveying, Mapping and Remote Sensing and GIS program at Global Resource Information Database (GRID) and Global Environmental Monitoring System (GEMS) at UNEP in Nairobi. One project is African Elephant Database which maps range and protected areas and can be displayed on continental, regional or national scale [ID-H/M&DR].


3439 LnwW  FAY, J. Michael and AGNAGNA, Marcellin. (1991). Forest elephant populations in the Central African Republic and Congo. Pachyderm, 14(3-19). Annotation: Fay’s part of report (pp. 4-12) focused on Central African Republic (CAR), remainder (pp. 12-19), by both authors, focused on Congo. Appendix summarizes bio-diversity of area and program planning required to conserve Nouabale area in Congo and adjacent DSR. Till recently little known of elephant population in Congo, dearth of data on other central African forest areas. No elephants recorded in Ngoto forest area in southwestern CAR, extrapolated population for proposed DSR is 3,600 that for Congo and adjacent DSR is 10,000. Density compares favorably with that of neighboring countries, suggests there could be as many as 25,000 elephants in this region [ID-H/M&DR].

3440 LnwW  FAY, J. Michael and AGNAGNA, Marcellin. (1991). A population survey of forest elephants (Loxodonta africana cyclotis) in northern Congo. African Journal of Ecology, 29(3):177-187. Annotation: From February-April 1989, transects were run in four forested areas of northern Congo (Brazzaville) to census elephant populations using dung counts. Total of 40.0 km of line transects completed. Overall extrapolated density of 0.7 elephants/sq km obtained with variation from 0.3 to 0.9 elephants/sq km. Shows first time that elephants occur in high densities in number of sites in northern Congo. When dung density plotted against distance from nearest village for each transect, significant positive linear correlation results. Based on this, we hypothesize that elephant population in much of northern Congo is high. Local reports and our observations indicate that elephant poaching is heavy in northern Congo and CITES ban on trade in African ivory had limited effect on poaching [ID-H/M&DR].


FEER, François. (1995). Morphology of fruits dispersed by African forest elephants. African Journal of Ecology, 33(3):279-284. Annotation: African forest elephant diet includes significant number of fruits. Large number and diversity of viable seeds observed in dung suggest elephant is major plant disperser, in Tai forest, considered principal dispersal agent of about 30% of large tree species. Uganda and Ghana studies suggest *Balanites wilsoniana* depends on elephant for dissemination. Focus on several fruit types, particularly with large well-protected seeds, considered mostly, possibly exclusively, dispersed by forest elephant. Estimated specific role of elephant more restrictive than others assumed. More work needed for regarding other frugivorous animals before paucity or loss of particular tree species can be attributed to disappearance of elephant in West African forests [ID-H/M&DR].


3471 *iaB FISHER, Daniel C., TRAPANI, Josh, SHOSHANI, Jeheskel, and WOODFORD, Michael S. (1998). Schreger angles in mammoth and mastodon tusk dentin. Current Research in the Pleistocene, 15:105-106. Annotation: One Schreger pattern more easily quantified is angle of intersection of dextral and sinistral spirals, used to distinguish modern ivory of African and Asian elephants from extinct ivory, mostly from woolly mammoths. Authors also present evidence Schreger angles can be used to distinguish mammoths from those of American mastodon [E/ECM].


3476 BabB FLEUX, Rachel. (1998). Histoire d'une merveille d'ingénierie mécanique: Genèse de la trompe. Sciences et Avenir, 611:42-46. Annotation: Includes much information as in Shoshani's 1997 article (Reference no. 5137). Research on trunk musculature was conducted by J. Shoshani, but credit is given only to the artist (Utako Kikutani/courtesy of "Natural History"). Phylogram (p. 44) includes Phosphatherium, not in the figure of Shoshani's article. Both articles have unique photographs of African elephants foraging while standing on hind legs [cover page of "Natural History Magazine", November 1997 (photograph by Urlich Döring), and page 46 in 1998 issue of "Sciences et Avenir" (photograph by M. & C. Denis)] [JS].

3477 *daU FLEMMING, Clare. (1998-99). Mammoth prospecting. Natural History, 107(10):78, 80. Annotation: Hyperdisease hypothesis: human populations expanded and colonized new land-masses during the Pleistocene, bringing virulent pathogens wiping out native animals. Whereas other Mammutthus primigenius became extinct by 10,000 years ago, those on Wrangel [Island] persisted an additional 6,000 years. Believed that because Wrangel's mammoths were such late survivors, if a deadly virus could be detected, fossil remains would be likeliest to have retained traces of it [E/ECM].


3480 BarC FOERSTER, Joseph J., HOUCK, Richard I., COPELAND, John F., SCHMIDT, Michael J., BYRON, H. T., and OLSSEN, John H. (1994). Surgical castration of the elephant (Elephas maximus and Loxodonta africana). Journal of Zoo and Wildlife Medicine, 25(3):355-359. Annotation: Normally, when castrated, large animals require a lengthy period of clamping arteries and veins to the testicle to prevent exsanguination. In elephants, according to authors, apparently only a brief period of clamping of artery is necessary — the veins barely bleed at all when cut! The vessels have very fibromuscular walls which immediately veno-constrict and effectively prevent bleeding. This rete or complex vessels is necessary to prevent overheating of internal testes. I have not heard of such powerful vasoconstrictive force in other mammals, though all vessels constrict when traumatized to some extent (very useful in an evolutionary sense). Questions: Is this mechanism, also present in other mammals with intra-abdominal testicle, such as the hyrax and manatee? Is there a good evolutionary explanation for this anatomical/physiological structure, even in small mammals like the hyrax? Was this mechanism known in elephants throughout their evolutionary history? Is it related to the size of the animal or to their tropical environment? [DWA].


3486 EmgC FOURAKER, Mike. (1997). Groucho at the Fort Worth Zoo. Journal of the Elephant Managers Association, 8(2):52-53. Annotation: "Groucho", a male Asian elephant, 27 years old, 2.9 meters (9 feet) tall at his back, weighs about 5,500 kg (12,000 pounds). Tusks measure close to one meter (1 yard) [JS].
*Annotation*: Apes and humans are more closely related than African and Asian elephants [E/ECM].

*Annotation*: “Recent reports suggest there are still three elephants living in the Knyasa Forest, the indigenous cow and the two surviving transplants from KNP. Their fate, along with the heritage of the Knyasa Forest itself, is in question” [E/ECM].

*Annotation*: See Reference nos. 1009, 3773, 3985, 4604, 5039 [MPK].


*Annotation*: “King Tusk” (also known as “Tommy”), weight “7 1/2” tons, produced largest stamp cancellation ever, to cancel giant replica of new Circus stamps issued by postal service [E/ECM].


*Annotation*: Female elephant surgically treated for purulent pododermatitis of more than palm size. After-treatment successful without bandage and restricted to repeated wood-tar painting of large sole defect and supported by stable hygiene measures [E/ECM].


*Annotation*: Management and conservation of largest land and sea mammals [E/ECM].


*Annotation*: Survey of 25 institutions by Welsh Mountain Zoo, England, on browse eaten by elephants. Appendices list poisonous and non-poisonous plants [ECM].

*Annotation*: *Loxodonta africana* is mentioned only in Table 1 [MPK].


*Annotation*: Studied a series of African elephant embryos and fetuses, estimated gestational ages 58-166 days, and found nephrostomes, a feature of aquatic vertebrates, in the mesonephric kidneys at all stages of development, a feature never recorded in the mesonephric kidneys of other viviparous mammals [E/ECM, abstract]. Janis, 1988 Reference no. 3826, p. 293, fig 1(b) presents “new views” and depicts that “sireniens”, “desmostylians”, “Moeritherium”, and “proboscideans” share aquatic adaptations. Gaeth et al., 1999 text reads as though the “aquatic ancestry” hypothesis was their new idea and not that of Janis, 1988. See Reference no. 3763, p. 1263 [JS].

*Annotation*: Surgeries of the American Association of Zoo Veterinarians/Wildlife Disease Association/American Association of Wildlife Veterinarians, 309.

*Annotation*: Dealing with media in case of death of an animal [JS].

*Annotation*: Paleocological interpretation of continental deposits found in Jebel Qatrani Formation of Fayum region. Proboscidea, Hyracoidae, Embirorphoda, and other taxa mentioned in Table 1, p. 137, and Table 2, p. 138-9 [E/ECM].

*Annotation*: Reviews situation of elephant populations in Kenya, possible problems with transferring African elephant from Appendix I to Appendix II and need to accommodate both people and elephants in wildlife management programs and implementation [ID-H/M&DR].


Annotation: Safety, welfare, medical, enrichment, education, research [JS].


3516 BbrB Garai, Marion E. (1990). Special relationships between female Asian elephants (Elephas maximus) in captivity. Diplomarbeit, Zoological Institute, University of Zurich, 51 pp. (unpublished thesis). Annotation: Sequence of hierarchy from individuals to a herd includes: for Loxodonta, matriarch —> family unit —> kin or bond groups —> clan —> sub-population —> population, and for Elephas, nursing units —> juvenile care units —> mixed groups —> herd. From p. 42: "... no matriarchs have been verified for Asian elephants (Kurt, 1986)" [MPK].


Annotation: Initial study attempts in ongoing research program focusing on behavior and social development of groups of translocated juvenile elephants on private ranches in South Africa [ID-H/M&DR].


3523 LbgB Garai, Marion E. (1998). Social organisation in translocated juvenile African elephants; the dominance hierarchy and an intriguing behaviour [Abstract]. Pachyderm, 25:42-43 [in English and French]. Annotation: Five groups penned and four groups free ranging translocated juvenile elephants studied to assess if they establish dominance hierarchy, if this hierarchy is transitive, and whether their dominance can be measured by the direction of aggressive and submissive behavior [E/ECM].


3526 LjwW Garstang, Michael, Laram, David Lee, Raspet, Richard, and Lindeque, Malan. (1995). Atmospheric controls on elephant communication. The Journal of Experimental Biology, 198:939-951. Annotation: Meteorological measurements in late dry season (Namibia) suggest atmospheric conditions conducive to long range transmission of infrasound utilized by elephants associated with strong diurnal cycle. Strong temperature inversions form at the surface before sunset and decay with sunrise. Range over which elephants communicate more than double at night. Optimum conditions occur 1-2 hours after sunset on clear, relatively calm nights when ranges of over 10 km are likely [ID-H/M&DR].


Georgievsk, Northern Caucasus, Russia. Craniun. 15(1):33-38 [summaries in English and Dutch]. Annotation: Nearly complete skeleton male Archidiskodon meridonialis, found in 1960 in Northern Caucasus, described and measured [E/ECM, summary].


“Enforcement of Zimbabwe’s ivory laws is grossly inadequate.” Minimum number of elephants in some countries/regions in Africa. Botswana 63,000; Zimbabwe 56,300; Zambia 19,700; South Africa 9,990; Namibia 5,840; Tanzania 73,460; Kenya 13,830; Central Africa 7,320; West Africa 2,760.


Gisi, Brian. (1997). Stimulus: eliciting response. Journal of the Elephant Managers Association, 8(2):54-56. Annotation: “If we seek to control the stimuli that an animal encounters, then it is important to truly understand what stimuli is and how it functions in the conditioning process” [E/ECM].


Glenon, Michael J. (1990). Has international law failed the elephant? American Journal of International Law, 84(1):1-43. Annotation: Quandary in elephant conservation, particularly African elephants, with respect to economics of ivory trade, lack of effective law enforcement, poverty, economic development in range states, human population and land use conflict with wildlife, and unsettled civil conditions. Development and implementation of CITES, shortcomings of Convention, aspects providing for greater effectiveness of CITES, aspects of rights, obligations associated with global environmental resources, series of actions, which would allow for effective protection of elephants [ID/H&M&DR].


GREAVES, Nick. (1996). Hwanje: retreat of the elephants. Southern Book Publishers (Pty) Ltd., Cape Town, 134 pp. Annotation: Foreword by William Travers. Elephants and other animals are depicted and described in their ecosystem. Includes glossary, bibliography, index. On page 37 is a chart of teeth and age: tooth M1 appears at about 1 year of age, M2 at 2, M3 at 6, M4 at 15, M5 at 28, teeth M6 appears at about 47 years of age. Reviewed in "Keeping Track", April/May, 1997 by Julienne Du Toit [JS].

Burkina Faso and Niger come together in a protected area of more than 25,000 sq kms, where more than 4,000 savanna elephants live in three apparently discrete groups. Pendjari group of about 1,000 head occupies range about 3,500 sq kms in Pendjari Park and Pendjari Reserve (Benin). Singou group of about 1,400 head occupies range about 5,500 sq kms in Singou, Pama and Arli reserves (Burkina Faso). Mekrou group of about 1,800 head occupies range about 12,000 sq kms in W National Park (3 countries) and Djonna Reserve (Benin). Groups, ranges described. Recommendations made for protection [ID-H/M&DR].


3614 EdrC GROSS, M. E., CLIFFORD, Charlotte A., and HARDY, Douglas A. (1994). Excitement in an elephant after intravenous administration of atropine. Journal of The American Veterinary Medical Association. 205(10):1437-1438. Annotation: A 28-year-old 3,400-kg Asian elephant (["Tuffie"]("Kathy")] was anesthetized at Dickerson Park Zoo to remove a dead calf. Atropine was administered approximately 90 minutes after azaperone. Within 1 minute after atropine injection, the elephant swayed, kicked, and moved agitatedly. When the behavior had not abated 30 minutes later, azaperone was again administered, and within 15 minutes, it responded to commands. After removal of 95-kg dead calf and 6 hours after induction of anesthesia, the elephant's condition deteriorated rapidly and it was euthanized" [E/ECM, p. 1437].


3622 BjwW GRUNWALD, Lisa. (1999). Awww...Awww... *All Animals* [Humane Society of the United States], Spring:2-5. Annotation: From the pages of Life, reporting by Anne Hollister and Stacey Bernstein. Beautiful pictures of baby elephants. After 31 years of watching


GUTHRIE, R. Dale. (1990). Frozen fauna of the mammoth steppe: the story of Blue Babe. University of Chicago Press, 323 pp. Annotation: A 36,000 year-old mummified bone was discovered in an Alaskan gold mine in 1979. Fascinating, informative, pages 1-34 cover frozen mammoth mummies; includes many typographical errors, e.g., proboscidean spelled three different ways (pp. 2, 15); on p. 112, the word “mandible” should be “dentary” [E/ECM; MPK].


GUY, P. R. (1989). The influence of elephants on a Brachystegia-Julbernardia woodland in Zimbabwe. Journal of Tropical Ecology, 5(2):215-226. Annotation: Brachystegia-Julbernardia woodlands inside and outside SWRA show major differences in structure, biomass and species composition. Woodlands inside which are affected by both elephants and fire have lower stem area, tree density and biomass than that outside which is affected mainly by fire. It is postulated that, by maintaining elephant population at about 250 animals, vegetation in the Reserve is recovering to its former composition [ID-H/M&DR].


HAGOS, Yohannes. (2000). Report on damage caused by elephants to banana plantations in Haykota area, Gash-Barka Zoba, Eritrea. Elephant, 2(4):13-14. Annotation: This article and that of Shoshani et al. (2000) complement each other. EDITORS’ NOTE: In Eritrea, first names, rather than second/last names, are used for citation of authorship. Family names as commonly employed by some nationalities are not used; instead, fathers’ first names are employed as second names for sons and daughters [SLS/JS].

HAIGHT, Jay. (1990). Captive management of breeding Asian elephants. Proceedings of the Fourth Elephant Keepers Workshop, Port...


3655 *dvU Hall, Don Alan. (1999). Explaining Pleistocene extinctions. Mammoth Trumpet, 14(1):15-21, 23. **Annotation:** Ross MacPhee believes cause of mysterious disappearance of mammoths and other species was disease, possibly virulent viruses killing quickly and crossing species boundaries; argues 'Hyperdisease' came to New World with first humans [E/ECM].


3659 LbrW Hall-Martin, Anthony J. (1987). Role of musth in the reproductive strategy of the African elephant (*Loxodonta africana*). Southern African Journal of Science, 83(10):616-620. **Annotation:** Behavioral, endocrinological data integrated for hypothesis that bulls in musth leave home range, travel far and fast, initiate contacts with distant breeding herds, show aggression overriding normal social male hierarchies, probably mate more often than non-musth bulls, then return to home range. Behavior associated with elevated levels of serum testosterone and dihydrotestosterone. Elephants normally show fidelity to sexually segregated adjoining home ranges, with regular contact between same bulls and cows. This breeding strategy applicable to older, dominant bulls in locally resident hierarchy. Since musth bulls mate far from normal ranges, strategy promotes gene flow and ensures out-breeding [ID-H/M&DR].

3660 LchW Hall-Martin, Anthony J. (1988). Phelwana. The Rhino & Elephant Journal, 1:22-23. **Annotation:** Death of bull, “Phelwana”, as result of gunshot wound; left heaviest tusks yet, part of KNP collection. Left tusk: 54 cm thick at lip, 257 cm long, weighed 63.8 kg. Right tusk: larger, 56 cm thick at lip, 277 cm long, weighed 71.7 kg [ID-H/M&DR].


3664 LcmW Hall-Martin, Anthony J. (1991). Adding to Addo. The Rhino & Elephant Journal, 5:18-20. **Annotation:** Program development and acquisition of privately owned land for incorporation into AENP which has a population of 162 elephants. Increase of this park to just over 11,700 hectare should allow for population of approximately 500 elephants [ID-H/M&DR].

3665 LiwW Hall-Martin, Anthony J. (1991). Successors for Kruger’s magnificent seven. Custos, 19(11):14-21. **Annotation:** Seven KNP bulls known as magnificent seven, notes presence of other bulls also known to have large tusks or were developing in size [ID-H/M&DR].

3666 LcmW Hall-Martin, Anthony J. (1992). Distribution and status of the African elephant (*Loxodonta africana*) in South Africa, 1652-1992. Koedoe, 35(1):65-88. **Annotation:** Reviews historical decline of South African elephants to a low of 120 animals in 1920, and outlines subsequent recovery to what is now over 10,000. Population growth rates of 6.8% and 6.7% per annum are derived from census and estimates for KNP and AENP, respectively. Consequent increase of elephant range and numbers in the next decade to a possible maximum of 31, 000 km² and 13,000 animals is envisaged [ID-H/M&DR].

3667 LkeCw Hall-Martin, Anthony J. (1992). The question of culling. In Elephants: majestic creatures of the wild (consult. ed. J. Shoshani), pp. 194-199, 201. Rodale Press, Emmaus (Pennsylvania), 240 pp. Also, Simon & Schuster, London. **Annotation:** Increased human and elephant populations throughout range states has led to land use conflict or, if not direct conflict for land, need to manage elephant populations so conflict will not occur. In some areas, poaching stemmed elephant populations but with ivory trade ban, this form of population control no longer significant. Policy of letting nature take its course, TNP in early 1970s, no longer acceptable. At this time, alternatives to culling not realistic or economic in long term, since culling provides economic returns, it can be utilized for conservation and protected area programs [ID-H/M&DR]. See Reference no. 4868 [MPK].


HALL-MARTIN, Anthony J. (1994). Death of a legend: Mandeleve is no more. The Rhino & Elephant Journal, 9:27-30. Annotation: Reviews what was known of age and range of one of well known larger tusked elephants in KNP, “Mandeleve”, which died of natural causes in 1993. Tusks were 73.5 and 69.0 kg [ID-H/M&DR].


HARLAND, David J. (1990). Jumping on the “ban” wagon: efforts to save the African elephant. The Fletcher Forum, 284-300. Annotation: Reviews, from legal and regulatory viewpoint, status of African elephants vis a vis results of seventh meeting of CITES as related to protection of the species and banning of international sale of raw ivory. Suggests that placing of the species on Appendix I was an ambiguous achievement and does not offer long term solution [ID-H/M&DR].


Annotation: Visit to MMGR [JLP].


Annotation: Ground surveys in protected areas, MaiNP and KBNP and Okapi Wildlife Reserve, in forest region of Zaire. Analysis of dung count, decay rates basis of estimating elephant populations. Population densities for MaiNP, KBNP, including extension area, and for Okapi are 0.68, 0.24 and 0.61 per sq km; population estimates for Parks are 5,500-7,500, 1,350-3,600 and 4,750-10,000, respectively. Elephant densities higher in remote core areas than in adjoining boundary areas and hinterlands in all three protected areas. In both MaiNP and Okapi, elephants now occupy areas where they had not been for over a decade. Unclear how much range expansion due to population growth, how much is reoccupation of traditionally used areas by herds that survived poaching. In KBNP, poaching did not stop with the ban. Appears to have resumed in Okapi Reserve, possibly in MaiNP since 1994 [ID-H/M&DR].


Annotation: MaiNP, created in 1970 with area of 10,800 sq kms, is in center of one of largest, most remote rain forests in Zaire. Elephants widely distributed through Park, surrounding area. Densities estimated from dung counts range from 0.39 per sq km in quadrates outside Park to 0.90 per sq km inside. Total population in Park estimated between 6,000 and 7,000 [ID-H/M&DR].


HAUNES, Gary, KLIMOWICZ, Janis, and REUERM, Jelle W. F. (eds.). (1999). Mammoths and the mammoth fauna: studies of an extinct ecosystem. Proceedings of the First International Mammoth Conference, St. Petersburg, Russia, October 16-21, 1995. DeinseA 6 (annual of the Natural History Museum, Rotterdam):1-222. Annotation: This special issue of DeinseA is an important volume with contributions by eminent scientists on mammoths and extinct ecosystems. The cover is adorned with a color illustration of a woolly mammoth, Mammutthus primigenius, by Kennis & Kennis; graphic design: Jaap van Leeuwen. "Just like dinosaurs, mammoths are extinct, large, almost mythical creatures of the past. And they are right in the center of studies by many paleontologists. ... The publica-
tion of this volume means a stimulus for scientists and interested laymen alike. The bottom line is that mammoths were part of an intricate ecosystem. Their extinction under the very eyes of mankind holds important clues to our future” (from inside front flap of dust cover). Individual articles are cited in this bibliography [JS/ECM].


3722 *vhU Hazen, Robert M. (1991). Phenomena, comment and notes. Smithsonian, 22(7):28-31. Annotation: “Albert Koch could find fossils as well as any man alive, but he got a little carried away when he assembled them.” Includes extinct proboscideans such as Missorium (=Mammut, the American mastodon) [E/ECM].


3733 EcC Helfer, Ralph. (1997). Modoc: the true story of the greatest elephant that ever lived. HarperCollins Publishers, New York, 325 pp. Annotation: Life history of a female Asian circus elephant (“Modoc”) which traveled the world with a faithful handler. Based on interviews with elephant people, these events may have happened to several different elephants, not a single one. In one instance, a freighter carrying the circus sank in the Bay of Bengal in the Indian Ocean, and Modoc tread water for days, holding up her handler and other people until another boat saved them all [SLS].


3739 LekW Higgins, Jane. (1993). The elephant men. Care for the Wild News, 5:6-17. Annotation: Outlines GNP program where family units of elephants were captured and relocated to Save Valley Conservancy, a newly established private reserve, rather than culling during severe drought and apparent overstocking conditions [ID-H/M&DR].


HOARE, R. E. (1989). An evaluation of satellite radiotracking of wildlife with reference to its proposed use in a study of the African elephant (Loxodonta africana africana), Msc, University of Reading. Annotation: Advantages of using commercially available satellite radio tracking system (ARGOS) for monitoring elephant movements in contrast to using VHF radio monitoring. Components of system described including animal radio collars, satellite, ground stations and data delivery with applications to tracking various wildlife species usually at higher latitudes. Comprehensive study of elephants in Laikipia district in Kenya proposed, with satellite tracking. Estimated that NOAA 10 and 11 satellites would give 3 and 4 locations per day, considered adequate coverage. Data to be collected intermittently with planned ground activities [ID-H/M&DR].


HOARE, Richard E. (1995). Options for the control of elephants in conflict with people. Pachyderm, 19:54-63. Annotation: Increasing elephant population in decreasing range situation in Zimbabwe, increasing amount of management taking place outside protected areas. Elephants are of considerable economic value at same time they are pest species. Focuses on approach to dealing with problem as a whole [ID-H/M&DR].


HODGES, J. K., VAN AARDE, R. J., and HEISTERMANN, M. H. (1994). Progesterone content and biosynthetic potential of the corpus luteum of the African elephant (Loxodonta africana). Journal of Reproduction and Fertility, 102(1):163-168. Annotation: Luteal tissues were collected from non pregnant and early, mid and late pregnant animals shot in KNP. Enzymeimmunoassassy and radioimmunoassay reveal there were no obvious differences in hormone (progesterone and 17a-hydroxyprogesterone) concentrations in corpora lutea from animals at different reproductive stages. Progesterone and 17a-hydroxyprogesterone immunoreactivity assayed before HPLC was 10-30 times higher than that measured after chromatographic separation. Results indicate major progesterin contained within and biosynthesized by corpora lutea of African elephants are 5a-reduced metabolites, and that progesterone and 17a-hydroxyprogesterone are quantitatively of minor importance [ID-H/M&DR].


HOFFMAN, M. T. (1993). Major P. J. Pretorius and the decimation of the Addo elephant herd in 1919-1920: important reassessments. Koedoe, 36(2):23-44. Annotation: Between June 1919 and August 1920, Major P. J. Pretorius reduced the largest known population of elephants in South Africa at that time from 130 to 16 animals. Land use conflict between farmers and elephants over dwindling water resources coupled with threat elephants posed to agricultural crops caused provincial administration’s extermination order. Very little data on animals killed exist but the ‘120 odd’ figure noted by Pretorius is reasonably accurate. Most of the hides were made into whips. It appears that a handful of individuals banded together and reversed total extermination order which spared 16 animals in an area which became AENP [ID-H/M&DR].

elephant utilization phytosociological characteristics in forest regrowth areas. Floristic composition and presence of certain fodder plants directed main activity of elephants. Limited recruitment of and heavy damage to plants characteristic of successional stages indicate regeneration of favored parts of forest area impeded [ID-H/M&DR].

3763 LapW

HOLDEN, Constance. (1999). Fetal elephants point to wet beginnings. Science, 284(5418):1263. Annotation: Researchers found in preserved elephant fetuses, ducts, called nephrostomes, that also appear in fish and frogs. The ducts, which disappear before birth, seem to be present for at least 2 months. Findings are reported in 11 May Proceedings of the National Academy of Sciences; cf. Reference no. 3504 [E/ECM].

3764 LgcW


3765 *weU


3766 *wvU


3767 LckW


3768 BaoC


3769 LbcW


3770 *ihU


3771 *xoU


3772 *xoU


3773 BdqC


3774 BzgC

HOUSE, Albert. (1993). Circus parade. Circus Report, No. 16.3. Annotation: Ringling Red unit staged a circus parade (in New York City) from Madison Square Garden to The Museum of Natural History on Wednesday March 31, where the skeleton of "Jumbo" was on display [E/ECM].

3775 EqtC


3776 BqrC


3777 EcjW


3778 ByeC


3779 EcwW


3780 BdoB


3781 LqtC


3782 LwsW


3783 LcW


3784 BicB


3785 *iuU


3786 EdpW


3787 EceW


3788 EmaC


3789 LcW

ILSLLEY, J. D. (1989). Helpful! I am an endangered species. The Rhino & Elephant Journal, 2:24-25. Annotation: Differences between need for economic development and effective wildlife management and utilization in African range states (e.g., South Africa) versus recently proposed CITES regulations [ID-H/M&DR].

3790 LcW

utilize wildlife for economic benefit of range states [ID-H/M&DR].


3798 LejW IUCN. (1990). Africa’s elephants. IUCN, Gland Switzerland, 15 pp., figs; maps; photos. Annotation: Data provided from four papers focusing on regional population status and conservation of elephant populations [ID-H/M&DR].


3802 LiCw IVORY TRADE REVIEW GROUP. (1989). The ivory trade and the future of the African elephant: summary of the interim report of the Ivory Trade Review Group. Pachyderm, 12:32-37. Annotation: African elephant declined in numbers by at least 50% during the last 10 years from poaching. Downward trend is related to protection. Only 1.5% of total area occupied by elephants is, at least on paper, protected. Bull elephants are most wanted for ivory, and reproductive rate of females is low due to lack of males for mating. Tonnage of ivory exports from Africa and number of elephants that were shot to achieve this is given [ID-H/M&DR].


3804 LlaW JACMHANN, Hugo. (1988). Estimating age in African elephants: a revision of Laws’ molar evaluation technique. African Journal of Ecology, 26(1):51-56. Annotation: To check if number of lamellae of each of six molars develop in each quadrant during an elephant’s lifetime, 100 intact teeth were extracted from lower jaws collected by KaNP Research Unit. It appears that number of lamellae per molar may vary with a population as well as between populations. If possible to predict deviation from number of lamellae per molar from some measurements of the tooth, variation within the population could be assessed. In KaNP sample no relation between size of molar and deviating number of lamellae found [ID-H/M&DR].


3808 LwmW JACMHANN, Hugo. (1992). Movements of elephants in and around the Nazinga Game Ranch, Burkina Faso. Journal of African Zoology, 106(1):27-37. Annotation: Elephant movement on NGR, area of tall grass and tree/shrub savanna. During dry and early wet season, December-June, 1989, population concentrated along ranch periphery as they sought permanent water and tried to avoid poachers. In mid to late wet season June-October, 1989, dispersal throughout the 940 sq. km ranch based on data collected from one radio collared male and two females. Through interviews, it was found that movement still occurs between Burkina Faso and northern areas of Ghana and Togo in wet season. Study recommends that protected corridors be established between NGR and Kadore Tambi National Park and the Park can eventually be repopulated [ID-H/M&DR].


Wildlife Foundation, Nairobi, Kenya, 178 pp. **Annotation:** Methodology used to estimate elephant populations counting animals by direct observation generally done using transects and line transect methods and accomplished by walking or using vehicle transport. Examples: Lupande Game Management Area in Zambia and NGR [ID-H/M&DR].

**3811 Lw**


**3812 LweW**

**Jacquemyn, Hugo and Cross, Tamara.** (1991). Effects of browsing by elephants on *Combretum/Terminalia* Woodland. *Environmental Conservation, 18*(2):169-171. **Annotation:** Also published in *Biological Conservation, 57*(1). Elephant woodland interactions in West African *Terminalia/Combretum* community at NGR, West Africa. Tree and shrub density greater than 1 meter in height measured. Average density 800 per hectare same when elephant densities remained below 0.6 per sq. km. At higher densities, woody stem density sharply reduced, no further changes in size class distributions of trees and shrubs occurred, but change in species composition apparent with larger proportions of low palatability species. During dry season and early wet season, ranch’s 400 elephants occupy slightly over half park area - generally unburned and central portion near permanent water. Above 0.6 animals per sq. km, stems above 1 meter in height remained unchanged, but reduction in number of trees in youngest age classes elephant density increased, woody stem density fell sharply; species composition shifted to more fire resistant and less palatable species [ID-H/M&DR].

**3818 LiuW**

**Jacquemyn, Hugo and Dubbin, Holly** (1991). The impact of the ivory ban on illegal hunting of elephants in six range states in Africa. WWF, Gland, Switzerland, Project no. 4578, 116 pp. **Annotation:** Impact of ivory ban on elephant poaching focus on major conservation areas of Zambia, Tanzania, Malawi, Cameroon, Ivory Coast and Zaire. Data on of law enforcement and rates of elephant poaching compared pre-ban and post-ban periods. Decrease in poaching levels of elephants in 5 of the 6 countries. Biggest drop in Tanzania, Zambia, Zaire, Cameroon and Ivory Coast in descending order. Only Malawi experienced rise in illegal killings. Ivory price decline in the first five countries [ID-H/M&DR].

**3820 BgcB**


**3821 *vhU**

**Jacquemyn, Hugo, O'Donoghue, M., and Rood, K.** (1989). Influence of fire on elephant use of *Combretum/Terminalia* woodland in southern Burkina Faso. *Oikos, 54*(3):310-314. **Annotation:** NGR data on woodland utilization, habitat preference, and elephant distribution show that elephants prefer areas left unburned during dry season. Comparison with other areas in Africa shows that resprouting of vegetation after fire is likely most important factor in determining degree of elephant utilization in areas burned early in dry season. Precise time of burning is crucial to effective elephant management [ID-H/M&DR].

**3828 *vgU**


**3829 *Com**


3849 EqwW JAYEWARDENE, Jayantha. (1997). Elephant conservation amidst development-Part IX. Tigerpaper, 24(2):14-19. Annotation: Elephants responsible for 50% of crop damage caused by animals despite crop protection efforts. Electric fencing drawback is that elephants usually manage to get through or over fences, though some increase in effectiveness achieved [E/ECM].


Annotation: In 1994, 113 elephants were present [SLS].


Johnston, Georgann. (1999). Transfer of elephants to Japan approved by CITES secretariat. Animal Keepers' Forum, 26(4):136. Annotation: Transfer of three of the TGR elephants residing in a park in South Africa has been approved. The proposed recipient is a Japanese safari park that houses six South African elephants. A final decision has not been made. See Reference nos. 3868, 3872, 3873, 4497, 4905, 5420 [ECM].
3883 LbrW KABIGUMILA, J. (1993). Diurnal activity of the elephants in Ngorongoro Crater, Tanzania. *African Journal of Ecology*, 31(1):75-80. **Annotation:** Elephants using Ngorongoro Crater floor are mature bulls only. Observations made by following known bulls recording activity at 5-minute intervals. Total of 103 bulls, 71 in dry season and 32 in wet season, followed for periods of 2 to 4 hours. No musth behavior suggesting that bulls using crater floor not sexually active. These animals may be using area to avoid harassment from sexually active bulls consorting with females, and to replenish energy spent while sexually active. Elephants in crater spend about 69% of time feeding, higher than noted elsewhere. Study focused on bulls, showing they devote little time to social activities, partly because they are mostly solitary, and partly because they have no social ties [ID-H/M&DR].

3884 LnCw KABIGUMILA, J. (1993). Feeding habits of elephants in Ngorongoro Crater, Tanzania. *African Journal of Ecology*, 31(2):156-164. **Annotation:** Observations on feeding habits of elephants from June 1984 to May 1985. Elephants' diet comprised at least 36 plant species ranging from big trees to small herbs. Elephants ate mostly sedges and tree browse during dry season, and forbs and grass during wet season. Elephants browsed on and damaged *Acacia xanthophloea* with greatest damage occurring to saplings in dry season. Since elephant damage was seasonal, most saplings would recover during wet season. Recommendation for continued monitoring of forest so that proper management can be taken to conserve it [ID-H/M&DR].


3893 *vwU KALB, Jon E. and FROEHLICH, David J. (1995). Interrelationships of late Neogene elephantoids: new evidence from the Middle Awash Valley, Afar, Ethiopia. *Geobios*, 28(6):727-736. **Annotation:** "As the most diverse collection of Elephantoidea from one area and a single stratigraphic sequence, fossils from the Middle Awash Valley, Ethiopia, add significantly to our current knowledge of the morphology and systematic phylogeny of late Neogene proboscideans." Includes *Anancus, Stegotetrabelodon, Stegodibelodon, Stegodon* [E/ECM].


3897 LbwW KALEMERA, M. C. (1987). Dry season diurnal activity of elephants in Lake Manyara National Park, Tanzania. *African Journal of Ecology*, 25(4):255-263. **Annotation:** Daytime activities of elephants in *Acacia tortilis* woodland of LMNP monitored over two dry seasons 1981 and 1982. Two methods to assess activity pattern were point sample technique, with one sample involving several elephants, and continuous observation. Variant of latter, the 5-minute interval method, used on one focal elephant each time. Activities analyzed as to time of day, tree density. Chi-squared tests showed there was no variation of activities as to various *A. tortilis* density categories. Elephants descend escarpment every morning so walking is pronounced activity at this time. They rest in woodland around noon, visit lake shore in the evening before most of them return up escarpment [ID-H/M&DR].


3905 LbeU KANGWANA, Kadzo Flora. (1995). Avoidance of Maasai by African elephants (Loxodonta africana). In A week with elephants (ed. J. C. Daniel and H. S. Dayte), pp. 529-530. Bombay Natural History Society/Oxford University Press, Bombay, 535 pp. Annotation: Interaction between African elephant and Maasai, nomadic pastoral people in vicinity of ANP. Maasai have tradition of young men or warriors spearing wild animals, including elephants, to prove courage. Practice has little effect on population, less than 1% loss per year, but does influence elephant behavior. Tape recordings of Maasai sounds of cattle bells and mooing played to groups of elephants caused animals to indicate fear. Family groups had greater reaction than bulls. Research provides example of how traditional practices of a people has influenced elephant behavior in a way that reduces confrontation [ID-H/M&DR].


3910 *ehU KAPP, R. O., CLEARY, D. L., SNYDER, G. G., and FISHER, D. C. (1990). Vegetational and climatic history of the Crystal Lake area and the Eldridge Mastodont Site, Montcalm County, Michigan. American Midland Naturalist, 123(1):47-63. Annotation: Pollen diagrams, radiocarbon dates, pollen zone stratigraphy. Open spruce parkland began over 12,000 years before present (ybp), followed by hardwood such as oak, black ash, blue beech, alder and willow. The American mastodon is believed to have been butchered and its habitat at about 11,000 ybp was dominated by coniferous and deciduous forest [JS].


wild was carried out in June 1993. Only 7.3% of the adult bulls were tuskers...as a result of protection afforded..., the number of tuskers appears to have increased somewhat. ...the role of a tusker in Sri Lanka goes well beyond its charismatic charm. It is an inte­

3939 LcwWKENNEDY, Joe. (1995). Of children and cheetahs. BBC Wildlife, 13(7):70-72. Annotation: “Since his controversial resignation from Kenya’s Wildlife Service, Richard Leakey has been keeping a low profile. But now he’s back, and he’s launching himself into politics. In the calm before the fray, director Joe Kennedy joined him on safari to learn about his views on the future of Kenya, its people and its wildlife” [E/ECM].


3969 *vju  Kluger, Jeffrey. (1999). Free woolly out of the cold. Time, November 1:82-83. Annotation: An international team of scientists studying the remains of a 20,000-year-old woolly mammoth from central Siberian permafrost and dread of cloning it; cf. Reference nos. 5350, 5472 [E/ECM].


3971 LnwW  Knight, M. H., Hitchins, P., and Erb, K. P. (1993). An aerial survey of rhinoceros and elephant in a portion of the Chobe National Park and surrounding areas, northern Botswana, September 1992. Pachyderm, 17:64-74. Annotation: In 1992 dry season a low intensity total count aerial survey, using two aircraft simultaneously, was done for black and white rhinos, and elephants in northern Botswana. No black rhinos recorded, total of seven white rhinos. Approximate population of 14,758 elephants giving an estimated density of 1.15 per sq. km for the areas as a whole. Relatively low carcass ratio of 3% is indicative of a population with low mortality and/or increased immigration [ID-H/M&DR].


3973 LuW  Koch, E. (1988). Did 100,000 elephants die to pay for the war in Angola? Weekly Mail (Johannesburg), [2-8 Sep 88].


Annotation: See Reference no. 3720 for details about Deinsea “6” [ECM/JS].

Kramer, Beverley, Teixeira, Maria, and Hattingh, J. (1991). The histology of the adrenal gland of the African elephant, Loxodonta africana. South African Journal of Zoology, 26(4):193-198. Annotation: Tissue from 14 adult male and female elephants processed in histology study of the adrenal gland of the African elephant. Gland is surrounded by a thick capsule composed of outer layer of dense connective tissue and inner layer composed of smooth muscle fiber. Below the latter layer is another layer of undifferentiated cells. Cortex is divided into three zones similar to adrenal glands of other mammals. Large amounts of collagenous and reticular tissue support secretory cells, which have marked lipid content. The cortical cells show features typical of steroid-producing cells. The medulla is characterized by an outer region of pale-staining chromaffin-positive (adrenaline) and an inner region of intensely staining chromaffin-positive (non-adrenaline) cells [ID-H/M&DR].


4049 LcwW Lahm, Sally A. (1996). A nationwide survey of crop-raiding by elephants and other species in Gabon. *Pachyderm*, 21:69-77. *Annotation*: Gabon harbors one of largest elephant populations in Africa. Since subsistence agriculture is practiced near forest edges, problem of crop raiding by elephants and other animals is common. Countrywide questionnaire ascertainment elephant crop raiding occurred in all provinces, was highest in three central provinces of Ogooue Maritime, Moyen-Ogooue and Ogooue-Ivindo. Of 132 cases of raiding investigated, 80% involved elephants only, 11% attributed to elephants combined with other species. Bananas appeared to be crop most susceptible to damage; elephants break the stem and eat inner core and young leaves. Maize tended to be trampled rather than eaten by elephants. Sweet manioc was eaten and bitter manioc more often trampled. It was not easy to estimate the number of animals involved, but the same individuals were implicated in a number of incidents: one elephant was implicated in 36 of 57 incidents. Present deterrent is control shooting, but since the shooting normally occurs well after the incident and the law requires that the elephant be shot within five kilometers of a village, the original culprit(s) may not be taken [ID-H/M&DR].


4053 BbgC LALAND, Stephanie. (1997). Peaceful kingdom: random acts of kindness by animals. Conari Press, Berkeley (California), 201 pp. Annotation: Elephants on pages 18 [altruism], 28-30 ["Alice" saves little girl], 33 [captures thief], 64-65 [tries to save rhino baby], 108-109 ["Big Sue" saves tightrope walker], 150 ["Tina" refused to enter her quarters after her handler, Robert Brockell, became sick, even after his voice was taped], 152 [covering baby with branches], 172-175 ["drawings"]. On page 181, Elke Riesterer, who uses "Tellington-Touch" on rhino, has used it successfully on elephants [JS].


4064 LqtC LANDUCCI, Gina, DOBRZELECKI, Laura, and KEEFE, Kirk. (1999). Painting as enrichment for Cheyenne Mountain Zoo's 0.1 protected contact African elephant. Animal Keepers' Forum, October:400-403. Annotation: Steps for training "Lucky" to "paint" in her stall while handlers are on other side of the bars [E/ECM].


Annotation: Low-level vertical changes in temperature and wind exert powerful and predictable influences on area ensonified by animal vocalizations. Computer modeling of low-frequency sound propagation in measured atmospheric conditions predicts calls of savanna elephants at these frequencies can have ranges exceeding 10 km and calls will be highly directional in presence of wind shear. Method for estimating sound propagation during field studies presented [E/ECM]

---

4076 LapW

4077 LcuW

4078 *gvU

4079 *ahU

4080 *avU

4081 *veU

4082 *ewU

4083 *apU

4084 *evU

4085 *hyU

4086 *gvU

4087 *gvU

4088 LiyW

4089 *hvU


Leader-Williams, Nigel. (1990). Black rhinos and elephants: lessons for conservation funding. Oryx, 24(1):23-29. Annotation: Rates of decline of black rhinos and African elephants related directly to conservation effort and spending. The Luangwa Valley National Park, Zambia, case study, demonstrates principle that adequate resources need to be invested to achieve objectives in conservation. However, most developing countries do not have the resources to protect large areas and economically valuable species from illegal exploitation. If local extinctions are to be avoided, funded conservation schemes must be concentrated in small parts of large reserves [ID-H/M&DR].

Leader-Williams, Nigel. (1993). The cost of conserving elephants. Pachyderm, 17:30-34. Annotation: African elephants, to varying degrees in different range states, live both within and outside protected areas. In either case, elephants may conflict with man. Range states have to expend funds to protect elephants. This questionnaire based survey found as a general rule in 1981 it was necessary to spend around US $215 per sq. km of protected area to prevent the decline of elephants due to severe commercial poaching for ivory. In 1989, taking inflation into account, US $340 was required to maintain the same standard. Ensuring the success of law enforcement efforts is probably the most important management objective for future conservation [ID-H/M&DR].


Leader-Williams, Nigel. (1996). African elephant numbers - a new approach. Oryx, 30(2):87-88. Annotation: “The African Elephant Database (AED) 1995 is the hard copy of a comprehensive, and totally redigitized, GIS database that contains data on the range and latest estimates of elephant numbers. The new database supersedes the AED 1992 (Douglas-Hamilton et al., 1992) and introduces a new system of categorizing data to better reflect variety in quality and in method of collection” [E/ECM]. Reviews the AED’s 1995 report noting that the report presents national data and suggests a continental population of 286,000 definite, 101,000 probable, 156,000 possible and a further 36,000 speculative and notes that elephants occupy about 5.8 million sq. km as compared to their former range of 30 million [ID-H/M&DR].


Leader-Williams, Nigel and Albion, S. D. (1988). Allocation of resources for conservation. Nature, 336(6199):533-535. Annotation: Ecological aspects suggest conservation areas be as large as possible, but reality of conservation management, particularly for protection of both habitat and species, suggest other considerations must be addressed. Luangwa Valley supporting both elephants and rhinos is example of need to consider monitoring and enforcement [ID-H/M&DR].

Leader-Williams, Nigel and Milner-Gulland, E. J. (1993). Policies for the enforcement of wildlife laws: the balance between detection and penalties in Luangwa Valley, Zambia. Conservation Biology, 7(3). 611-617. Annotation: Models have shown levels of law enforcement in the Luangwa Valley in 1980s were inadequate to prevent elephant and black rhino poaching. Theory suggests deterrent effect of an increase in detection rate will be larger than similar increase in penalty. The most effective economic penalty would be a variable fine related to number of illegal trophies harvested, but this may be hard to legislate. Wildlife managers conserving elephants and rhinos should focus on improving detection rates rather than on requesting severe penalties without concurrent improvements in detection [ID-H/M&DR].

and 1979-85, their motivation and success in capturing poachers in 1979-85, and distribution of poaching in relation to patrol efforts. Elephants increased at rate of +0.06 from 1947 to 1969 and decreased at rate of -0.63 and rhinos at -0.12 during 1979-85 due to poaching. Patrols found that offenders involved in light poaching originated from Luangwa Valley; organized gangs came from outside. Poaching showed consistent trends across different areas, but most trends were complex rather than exponential across time. Patrols were effective but not adequate [ID-H/M&DR].


4111 LuiW LEKEY, Richard E. (1993). A perspective from Kenya: elephants today and tomorrow. Wildlife Conservation, 96(2):58-59, 89. Annotation: Campaign for public support for ivory ban and its success on lowering ivory prices and poaching. Argues against resuming ivory trade because smuggling, corruption and poor pay, which allow poaching to flourish, undercut controls should trade resume. Looks to research on birth control measures rather than culling to control population, categorizing elephants, with dolphins and whales, as intelligent wildlife that should command respect and protection [ID-H/M&DR].


4116 LrbW LEE, Phyllis C. (1987). Allomothering among African elephants. Animal Behavior, 35(1):278-291. Annotation: Study conducted in ANP. Elephant calves are born into stable family units, with variety of individuals with whom they can interact. In population of elephants with known lineages and calf ages, interactions between calves and other elephants found to be frequent and consisted of either relaxed, friendly greetings and investigations of others or assistance when calves were threatened or distressed. Juvenile and adolescent females comforted, assisted and protected calves; these females were defined as allomothers. Allomothers tended to be family members but were not always siblings. Siblings maintained close proximity to calves, while calf defense also involved less closely related female family members. Early establishment of close caretaking relationships within families may enhance family stability through time. Suckling of calves by non-mothers extremely rare, and unlikely to enhance the nutritional intake of calves [ID-H/M&DR]. See Reference no. 4803 [MPK].


4123 LmaW LEE, Phyllis C. and MOSS, Cynthia. J. (1995). Statural growth in known-age African elephants (Loxodonta africana). Journal of Zoology, London, 236(1):29-41. Annotation: Shoulder height of 224 females and 170 males, and hind foot lengths of 236 females and 217 known-age African elephants (ANP) were measured and growth curves constructed for each measure of size. A linear relationship between foot length and shoulder height was confirmed in simultaneous measures of 97 males and 110 females. Growth curves demonstrated typical sexual dimorphism in both foot length and shoulder height, with males growing more rapidly. Size dimorphism in foot length and shoulder height becomes marked by the age of 10, with males on average being 60-70 cm taller than females at 65 years. Variance in growth is slightly greater in females and it is proposed that female growth after puberty is affected by a trade-off between growth and reproduction [ID-H/M&DR].


reached is 9.5 meters (about 10 yards and one foot; based on measurements taken for “Ahmed”, see Elephant 2(3):19, and other sources) [ECM].


4131 BrqC LEINHARDT, John. (1995). Wildlife conservation in zoos. Swara, 18(6):14. Annotation: Zoos and wildlife managers are working together to solve problems and exchange ideas on technology. An example of zoo-developed technology aiding wild animals population management is underway in the Sweetwaters Rhino Sanctuary on Ol Pejeta ranch in Kenya. A series of contraceptive injections developed on other species in zoo settings is being tried on five female elephants to see if it can effectively control the rate of reproduction [ECM, p. 14]. See Reference nos. 2963, 2995, 4777, 4786, 5098, 5527 [MPK].


4133 LcjW LEITH, Brian. (1995). Whose game is it anyway? BBC Wildlife. 13(8):64-68. Annotation: Author sees a bright future for animals of Africa, but only if animals are given back to African people and people are allowed to put them to use [E/ECM].


4144 LwcW LEWIS, Dale M. (1987). Elephant response to early burning in mopane woodland, Zambia. South African Journal of Wildlife Research, 17(2):33-40. Annotation: Experimental early burning carried out for two consecutive years to study elephant response to dry season manipulation of grass forage in mopane woodland in Luangwa Valley. Results suggest elephant range influenced in dry season by grass cover availability and browse intake was reduced where grass forage was burned out, but forage utilization increased in surrounding unburned areas. Early burning in mopane woodland may be a useful management tool to reduce browse utilization by elephants in this woodland [ID-H/M&DR].


tored for 5 years in locations of varying soil types but similar elephant densities. Results suggest that the influence of soils and elephants on C. mopane alter successional transitions from grassland to woodland. Soils that promote coppicing of C. mopane yield less stable woodlands when associated with elephants than soils promoting woodlands with large boles, non-coppicing trees. Implications for forest/elephant management [ID-H/M&DR].

4148 LebW LEWIS, Dale M. and FRAMPTON, David. (1990). Lesson under a mango tree. International Wildlife, 20(4):40-43. Annotation: Lewis' hypothesis was tested where elephants congregated where gunshot, grass-burning, and other human-related disturbances were least intense. Hypothesis was tested by allowing elephants to forage in these areas outside national parks then letting local Zambians get involved in these projects. Text by Lewis, color illustrations with African tribal motifs by Frampton [E/ECM].


4151 BdqC LEWIS, John C. M. (1991). Anaesthesia in captive elephants. In Proceedings of The Fifth Elephant Workshop, hosted by Windsor Safari Park, Windsor, United Kingdom, 20 September 1991., pp. 22-30. Annotation: Intended to provide broad overview, describing range of anesthetic techniques available, conditions under which such procedures should be carried out and some of the potential hazards that may arise [E/ECM].


4155 LbrW LIDDELL, Marlene. (1997). An orphanage for some big babies. Smithsonian, 27(12):54-59. Annotation: Photographs by Jim Leachman. "Daphne Sheldrick has turned her Nairobi home into a nursery and rehabilitation center for infant elephants who have lost their families" [E/ECM, p. 54].


4161 LapB LILLYWHITE, H. B. and STEIN, B. R. (1987). Surface sculpturing and water retention of elephant skin. Journal of Zoology, 211(4):727-734. Annotation: "Retention of water by casts of integument is 4.5-10 times greater than that of flat surfaces and is greater in African elephants than in Asian elephants. Both species lack sebum and sweat glands and require regular wetting of their skin" [E/SLS]. The integument of elephants is highly sculptured with wrinkles and crevices arranged in prominent geometric patterns, more so in the African than in the Asian elephants. The highly sculptured morphology functions to enhance retention of surface moisture during peridioc wallowing and could have great physiological significance during drought periods when intense heat and solar radiation coincide with limited availability of water [ID-H/M&DR].


4165 LckW LINDEQUE, Malan. (1988). Population dynamics of elephants in Etosha National Park, South West Africa/Namibia. Ph.D. dissertation, University of Stellenbosch (South Africa), 285 pp. Annotation: Elephant numbers in ENP increased steadily since recolonization of park by elephants in early 1950s. Period of rapid increase occurred from 1979 to 1983 coinciding with the recent trans African drought. The population appeared to have erupted and was culled twice to halt further increases and prevent irreversible changes in plant species diversity due to an overpopulation. Study done to determine fecundity and mortality and rate of increase in the elephant population in order to manage the population by artificial control in numbers. Evidence from reproductive parameters, age structures and mortality derived from data from culled elephants in 1983 and 1985 suggest that changes in abundance were not due to explosive breeding or mortalities before and after the drought but to migration and emigration. ENP population seems part of general Kaokoveld, Ovambo and Kavango population [ID-H/M&DR].

4166 LwiW LINDEQUE, Malan. (1991). Age structure of the elephant population in the Etosha National Park, Namibia. Madoqua, 18(1):27-32. Annotation: The age structure of the elephant population in ENP was determined using aerial photogrammetry and ground classification of herds into age groups. Age distributions derived from photogrammetry differed significantly between years in 1983-1987. Age structures derived from either method used, nevertheless, did not differ drastically from year to year, indicating that age specific mortality and survival rates remained similar from 1977-1988. A doubling of population size from 1974 to 1983 did not result from any change in fecundity, as noticeable changes in the age structure did not occur. The similarity in age structures over this period suggests...
that population increases were due to immigration [ID-H/M&DR].

**Annotation:** Variation in number of laminae per molar, and in number and position of foramina mentale in mandibles from elephants in the ENP rules out the use of referenced laminary counts for age estimation purposes. Premature loss of anterior molar fragments occurred in 18% of mandibles and is additional source of confusion and subjectivity in identification of age classes. Classification of mandibles according to degree of eruption and attrition of anterior and posterior molars independently, result in different age distributions, and indicates that loss of molar fragments is more irregular than eruption sequence of molars. Anomalous peaks in age distribution corresponding to loss of molars were less distinctive in samples from the ENP, than in all other populations studied. The age estimation method of Laws (1966, 1967) could not be shown to be inaccurate and age distributions based on the original schedule and recent revisions were not significantly different [ID-H/M&DR].

**Annotation:** Background of population loss historically, recent development of conservation efforts for elephants in northern Namibia [ID-H/M&DR].

**Annotation:** Namibia’s elephant population ranges over large section of northern part of the country, numbers over 7,000 animals, significant change from almost extinction earlier this century. Most elephants are outside protected areas and their extensive migratory range makes it difficult to monitor land use conflicts. Management strategies based on sustainable use [ID-H/M&DR].


**Annotation:** Satellite tracking is a valuable tool despite technical problems. Two out of ten satellite transmitters failed within two months of deployment, but average of one location per collar transmitter obtained every 3-4 days for the period October 1987 to May 1988. This wet season study found seasonal home ranges larger than recorded elsewhere varying between 5,800 to 8,700 sq. km [ID-H/M&DR].

**Annotation:** Use of alien plants in floodplain of Hoanib River. Elephants browsed *Ricinus communis*, but no evidence in dung analysis of use of toxic *Datura innoxia* that causes nervous disorders in other ungulates [ID-H/M&DR].

**Annotation:** Post-natal growth in African elephant described using three alternative mathematical models and two age schedules. Von Bertalanffy, Gompertz and Logistic equations all provided adequate models but varied in estimations. It appears males continue to grow throughout their lifespan, while females reach asymptotic size in 35-40 years. No evidence of differences in growth rate of males or females up to 10 years. Growth rates of captive animals differ substantially from wild populations so may not be adequate references for age estimation [ID-H/M&DR].


**Annotation:** General elephant habitat interactions between herbivores and vegetation. Relationship of elephants and woodland in northern Botswana [ID-H/M&DR].

**Annotation:** Behavior of adult female elephant feeding on grass on two habitat types, woodland and swamp edge. Rate of feeding and dry matter intake estimated with measurements of standing herb layer biomass in wet and dry seasons. Nutrient intake calculated in different seasons. Qualitative model of habitat and diet based on foraging profitability proposed, and is consistent with shifting habitat patterns in surveys of Amboseli basin [ID-H/M&DR].

**Annotation:** In all places where elephants are managed, authorities are concerned over elephant impact on vegetation and risk of irreversible habitat change. But management objectives have not been clearly defined, or, if so, their basis not entirely logical. Ecological processes which move the system from one state to another and requirements of plant and animal species that are affected by elephant-tree interaction, are key aspects [ID-H/M&DR].

**Annotation:** Elephant-habitat interactions include elephants' population dynamics, density, distribution and diet selection, and population dynamics and responses to environmental stress of the plant communities. Focuses on measurement of plant responses to elephant herbivory the most common question and concern of wildfire managers with respect to interaction between this species and their habitats [ID-H/M&DR].

**Annotation:** See Reference no. 3720 for details about "DeinseA 6" [ECM/JS].

**Annotation:** "Bolivar", a male Asian
elephant, lived in Philadelphia Zoo, 1888-1908. Killed two men, one of whom offered him a lighted cigar, which badly burned his trunk. Kept in confinement, and died from arthritis, cardiac, hepatic and splenic lesions. Author hypothesizes that isolation led him to grind his teeth, and destroy the joint between mandible and cranium [E/ECM].


LITERATURE:


Annotation: Total elephant aerial count carried out in southwestern Eritrea and northern Ethiopia between 31 October and 16 November 1996. 8 elephants counted, two near Haicota along Gash River, six along Tekezze River on Ethiopian side of border. Count less than expected, cannot conclude these are only elephants present [E/ECM].


4214 LhgW Llewellyn, Sue. (1992). Please adopt an elephant. Wildlife times, 6:7-8. Annotation: Cynthia Moss gave up her job as “Newsweek Magazine” reporter/researcher to work for Iain Douglas-Hamilton. It was the beginning of her love affair with elephants that shaped her future and made her one of the foremost experts in elephant behavior” [E/ECM].

4215 LcmW Llewellyn, Sue. (1993). Hot spots. Wildlife times, 2:1:8. Annotation: “[Wednesday October 7] was the first time Thermal imaging (TI) equipment has been used successfully to detect elephants under trees, the first phase in an ongoing project by ELEFRIENDS in association with Dr. Iain Douglas-Hamilton...” [E/ECM].


4223 LnwW Loutit, Blythe and Lindeque, Malan. (1988). A great step for the desert giants. Ougaga, 22:26-28. Annotation: Conservation efforts and increasing range restriction of elephant in northern Namibia. 1960 population estimate was 1,000. By early 1980s, about 70 in western areas and 250 in central and eastern regions of Kaokoveld. Population grew since 1985, but migratory routes are fenced and range is more restricted by agriculture. Radio tracking project has collared six mature cows [ID-H/M&D].


4235 *avU Lucas, Spencer G. and Effinger, James A. (1991). Mammutus from Lincoln County and a review of the mammoths from the...


4245 BiuW Luxmoore, Richard, Caldwell, John, and Hithersay, Lionel. (1989). Comparison of CITES and Customs statistics on the international trade in ivory and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 3.1. The Ivory Trade Review Group, Oxford. **Annotation:** Compares raw ivory trade data from the annual reports of Parties to CITES, export permits issued by CITES and country Customs records. Lists the Parties their date of entry into the Convention and the years for which each submitted annual reports between 1979 and 1988 and notes the Customs statistics consulted. Assesses ivory imports gleaned from the Customs statistics and the CITES permit imports as available for Japan, Hong Kong, Germany, France, Taiwan, Thailand and China [ID-H/M&DR].


4254 LcjW Mabry, Marcus and Weingarten, Tara. (1997). The elephant lobby: should Americans pay to lure big-game hunters to Zimbabwe? *Newsweek* (September 8) 130(10):42-43. **Annotation:** CAMPFIRE [ECM].

4255 +nvB MacFadden, Bruce J. (1997). Origin and evolution of the grazing guild in New World terrestrial mammals. *Trends in Ecology & Evolution*, 12, 5(131):182-187. **Annotation:** "Although vertebrate herbivory has existed on land for about 300 million years, the grazing adaptation, principally developed in mammals, did not appear until the middle Cenozoic about 30 million years ago" [E/ECM].

4256 +mjB MacFadden, Bruce J. and Hubert, Richard C., Jr. (1990). Body size estimates and size distribution of ungulate mammals from the late...

4257 Lhw

4257 LchW


4258 Lhw


4259 BhvC


4260 BgJB


4261 LchW


4262 *djU

4262 MacPhee, Ross D. E. and Marx, Preston A. (1999). Mammoths & microbes: hyperdisease attacked the New World. *Discovering Archaeology*, 1(5):54-56, 59. *Annotation: A disease-causing organism may have been carried by humans or the animals who traveled with them, as they entered North America. Animals of the New World had no immunity to the microbe and were helpless against it [E/ECM].

4263 Ecgb


4264 Liw


4265 EapW


4266 +veB


4267 BqC


4268 BqC


4269 BqC


4270 Lhw


4271 ErO


4272 ErO


4273 LnJK

4273 Malan, John W. and van Wyk, Abraham E. (1993). Bark structure and preferential bark utilisation by the African elephant. *IWA Journal*, 14(2):173-185. *Annotation: Hypothesis that bark fracture properties influence debarking of selected trees by African elephants tested in northern TGR. Index of bark breakage strength and pliability of secondary phloem tissue compiled for 11 common riverine species, bark anatomy of these species investigated to determine relative fibrosity. Majority of preferred species have strong and pliable bark, associated with high proportion of fibers. But not all preferred species have these characteristics, indicating factors other than bark fracture properties affect species preference. Bark structure influences way pieces of bark stripped from tree trunk during debarking [ID-H/M&DR].

4274 Lcw


4275 +vxB

4275 Malvarchuk, B. A., Dereenko, M. V., Lapinskii, A. G., and Solovenchuk, L. L. (1996). Polymerase chain reaction analysis of ancient DNA (Enmyneveem mammoth). *Biography Bulletin*, 23(6):562-565. *Annotation: Translated from "Izvestiya Akademii Nauk", Seriya Biologicheskaya, 6:681-686. DNA was isolated from "Enmyneveem mammoth" muscles, and control region and cytochrome b gene of mitochondrial genomic were analyzed by polymerase chain reaction (PCR). Mammoth DNA was amplified by classical PCR (two primer system) and single-primer PCR (spPCR) resulting in DNA fragments up to 1600 bp long. Restriction analysis of mitochondrial cytochrome b gene was carried out. Cytochrome b genes in three Elephantidae genera were compared (abstract, p. 562). Authors concluded DNA of mammoth identical to that of African elephants. These data point to phylogenetic relations between genera *Mammuthus* and *Loxodonta* and are at variance with trichotomy of Elephantidae genera (p. 565); cf. Annotation to 5753 [E/ECM].

4276 Lcw

4276 Mann, P. (1987). Elephants and rhinoceros in Zambia: le crepuscule des mastodontes. *La Courrier de la Nature*, 107:32-37. *Annotation: Outlines some of the internal and external situations that have caused the large scale loss of elephant and rhino in Zambia during the last decade and notes some of the funding programs which have assisted in stemming the tide [ID-H/M&DR].

4277 Lcw


4278 ErtC

4278 Mar, Khyne U. (1996). Captive breeding of Asian elephants in Myanmar: an analysis of the reproductive parameters of domestic female elephants of the Union of Myanmar. *Tigerpaper*, 23(4):6-13. *Annotation: In this initial phase of the studbook project of logging elephants of the state-owned Myanmar Timber Enterprise, it was found that an adult-dominated age structure and female-bias sex ratios are characteristics of the population [E/ECM].

4279 ErpW


4280 LiuW  

4281 UzqC  

4282 EzgC  

4283 EbzC  

4284 BicB  

4285 LwmW  

4286 LmwW  

4287 BhqB  

4288 LyzU  
MARRShAll, Eliot. (1998). Elephantine gift stirs museum debate. *Science*, 280:1186-1187. **Annotation:** Renovations at the National Museum of Natural History may result in the trashing of some cherished old exhibits and relocation of the huge elephant in the entrance rotunda that serves as the museum’s icon [E/ECM].

4289 LeCw  

4290 EiYb  

4291 BicC  

4292 BicB  

4293 BicC  
MARtIN, Esmond Bradley. (1990). Ivory billiard balls. *BBC Wildlife*, 8(9):622-623. **Annotation:** International campaign to discourage people in western Europe, the US and Japan from buying ivory had major effect on ivory trade. One effect is that, except for signature seals, there has been drastic decline in carving in India, India, Hong Kong and China. While prices have not declined markedly in India, in Kenya it has dropped to 1/10 its former value [ID-H/M&DR].

4294 LiCw  

4295 LiuW  

4296 BiuW  

4297 EiuW  

4298 BlyW  
MARtIN, Esmond Bradley. (1993). The effects of the 1989 international elephant ivory ban on the netsuke carvers of Japan. *The Rhino & Elephant Journal*, 8:31-33. **Annotation:** Use of ivory in making of netsukes. Originally made to attach tobacco pouches to kimonos these carvings became national and internationally traded works of art. Since 1989 ban, alternative ivory sources such as mammoth ivory and hippo teeth used in place of elephant ivory [ID-H/M&DR].

4299 BiuW  

4300 LihW  
MARtIN, Esmond Bradley. (1998). New buyers of ivory in the Sudan threaten elephants. *Oryx*, 32(3):166-169. **Annotation:** All the main curio shops in the three major cities of Sudan have been selling carved ivory items, mainly to Asians living in or visiting Sudan; prices doubled between 1996 and 1997, with a range per kg paid by craftsmen, in late 1997, from US $15.50 (small tusk) to US $43.60 (large...
tusk of good quality) [E/SLS].


4303 EiuW MARTIN, Esmond Bradley and VIGNE, Lucy. (1997). Expanding ivory production in Myanmar threatens wild elephants. Oryx, 31(3):158-160. Annotation: Since 1980s smuggling tusks and ivory objects from Myanmar into neighboring Thailand increasing, some worked ivory smuggled into China. Since ivory ban in 1989/90, foreign visitors have smuggled ivory items they buy out of Myanmar in their luggage, chances of being caught slim. In country where illegal trade in opium, gemstones, timber and wildlife is rife, and often controlled by influential people, there is little hope the current military government will give greater priority to protecting wild elephants [E/ECM].


4305 *uJU MARTIN, Paul S. (1999). The time of the hunters: a ‘blitzkrieg’ by fierce humans killed off the giants. Discovering Archaeology, 1(5):40-41, 43-45, 47. Annotation: More than 13,000 years ago, they crossed the Bering Strait and discovered a new world. None of the animals in this world had ever seen these creatures and didn’t know enough to be afraid, so the hunters destroyed them [E/ECM].


4308 LicW MARTIN, Rowan B. (1990). Elephants: the dust has settled. African Wildlife, 44(4):204-206. Annotation: Conclusions of CITES meeting in Lausanne, Switzerland, 1989, that placed ban on ivory trade. Control mechanisms put in place by southern African countries to regulate illegal trade in elephant products from elephant resources and operation of marketing center for these countries are discussed [ID-H/M&DR].


4311 LkcW MARTIN, Rowan B. (1992). The number of elephants killed in Zimbabwe: 1960-1991 In Elephant management in Zimbabwe (2nd edition) (ed. R. B. Martin, A. M. G. Conybeare), Appendix 1, pp. 45-49. Dept of National Parks and Wild Life Management, Harare, Zimbabwe. Annotation: Review of records gives an estimate of 46,775 elephants killed between 1960 an 1991. On a regional basis, the largest number, 43%, were destroyed in Matabeleland North. On an annual basis, there were three distinct peaks: the early 1960s when culls took place in HNP and MNP, the 1970s when large culls were undertaken in GNP and HNP and then in the 1980s with culls removed 20,000 in 1982 and 13,000 in 1986 from HNP [ID-H/M&DR].


Annotation: From When elephants weep: the emotional lives of animals. Delacorte Press, New York. One story relates an incident of a work elephant named “Ma Shwe”, who saved her three month old calf from rising flood waters in Myanmar by lifting it in her trunk to a rocky ledge above the water [E/ECM].


Annotation: Of 113 fossil proboscidean species, 85% are classified as Elephas, the majority being Elephas antiquus from the Paleogene of Europe. Science. 276:46-47.

Annotation: Elephants mentioned in a few places (e.g., Chapter 5); subtle more apt. Opens mind of reader to perceive animals not only as objects of scientific study, but as thinking, feeling beings. Readers may not read notes and references and accept information given as fact. Reviewed by Robert H. I. Dale in “JEMA”, 6(2):68-69 [JS].


Annotation: Clean skin very important element of elephant care [E/ECM].

Annotation: Of 113 fossil proboscidean species, 85% are classified as Elephas, the majority being Elephas antiquus from the Paleogene of Europe. Science. 276:46-47.


Annotation: Of 113 fossil proboscidean species, 85% are classified as Elephas, the majority being Elephas antiquus from the Paleogene of Europe. Science. 276:46-47.

Annotation: From When elephants weep: the emotional lives of animals. Delacorte Press, New York. One story relates an incident of a work elephant named “Ma Shwe”, who saved her three month old calf from rising flood waters in Myanmar by lifting it in her trunk to a rocky ledge above the water [E/ECM].

Annotation: From When elephants weep: the emotional lives of animals. Delacorte Press, New York. One story relates an incident of a work elephant named “Ma Shwe”, who saved her three month old calf from rising flood waters in Myanmar by lifting it in her trunk to a rocky ledge above the water [E/ECM].
202


4341 LbqB  McKnight, B. L. (1995). Behavioral ecology of 'hand-reared' African elephants (*Loxodonta africana* (Blumenbach)) in Tsavo East National Park, Kenya. *African Journal of Ecology*, 33(3):242-256. *Annotation*: Most data collected for two years on hand-reared animals done following on foot; in the wild done from vehicle. Hand-reared animals of 12-60 months fed 82.9% of time, rested for 7.9% while wild calves of similar age fed for 44.5%, rested for 35.5% of time. Both groups fed primarily on grass. Similar results obtained from two wet and two dry season observations periods. Since human contact found to have major effect on behavior of hand-reared animals, recommendations suggest minimizing contact [ID-H/M&DR].


4350 LceW  McShane, T. O. (1987). Elephant-fire relationships in *Combretum/Terminalia woodland in south-west Niger*. *African Journal of Ecology*, 25(2):79-94. *Annotation*: Data on woodland utilization and damage collected on series of quadrates randomly located in a 100 sq. km study area in W National Park and Tamou Reserve in southwest Niger to test view that distribution of elephants and impact by elephants on woodland can be manipulated by burning. Mosaic of burned and unburned land, soil moisture levels and burned-sprouted, burned-unsprouted and unburned vegetation at different positions let elephants utilize different aspects to meet different needs. Differences in elephant distribution by activity, relative to spatial distribution of burning, indicated comparisons by aerial surveys may be biased. It is recommended that management implications of burning with respect to elephant-woodland interactions be considered in broader model [ID-H/M&DR].

4351 LewW  McShane, T. O. (1989). Some preliminary results of the relationship between soils and tree response to elephant damage. *Pachyderm*, 11:29-31. *Annotation*: VMGR exhibits variety of conditions from sandy well-drained sites where soil-water dynamics generally favor plant biomass production to clay poorly drained sites where soil-water dynamics do not favor plant biomass production. Preliminary data on relationship between range of these soil-water conditions in VMGR and how trees respond to elephant damage. Whereas the standard models of elephant-woodland interactions hypothesize that the effect of elephant on woodland is to reduce tree density, and therefore to reduce food availability, this study indicates that elephant-woodland interactions may be more site specific [ID-H/M&DR].


4356 EcbB  Mecir, Anthony (photographs by Michael Freeman). (1998). Big trouble. *Smithsonian*, 29(6):52-56, 58, 60, 62-63. *Annotation*: "After years of abuse and neglect, Thailand’s elephants are in big trouble... In Thailand, only 1,350 elephants still roam free and another 3,800 captive animals there have fallen on hard times" [E/ECM].


4360 LnW MEISSNER, H. H., SPREETH, E. B., DE VILJERS, P. A., PIETersen, E. W., HUGO, T. A., and TERBLANCHE, B. F. (1990). Quality of food and voluntary intake by elephant as measured by Lignin Index. South African Journal of Wildlife Research-Suid Afrikaanse Tydskrif Vir Natuurforsk, 20(3):104-110. Annotation: Study of free ranging male elephants to obtain information on quality of diet selected during different seasons. It was hoped that determination of the voluntary intake and an estimation of energy requirements could be used to determine carrying capacity on game range bordering KNP. Food selection observed visually, feces voided measured in toto over 24 hours and digestibility estimated by lignin index. Seasonal effects were significant. A negative association found between digestibility and intake indicating that intake of elephants increased during dry season. Estimates of energy requirements correspond closely with published data [ID-H/M&DR].


4362 LeiW MELDRUM, Andrew. (1989). Zimbabwe's Campfire Program. Africa Report, 34(6):48-49. Annotation: “The theory behind the Campfire program is that when the people get economic gains from the elephant and other wildlife, they will want to grow those populations like a crop” [E/ECM, p. 49].


4372 LcW MERRIDETH, Martin. (1989). Illegal flows of ivory in southern Africa. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 2.7. The Ivory Trade Review Group, Oxford. Annotation: Country by country review of well organized ivory traffic in southern Africa that is part of more general contraband system operating throughout region. South Africa is usual destination for ivory including that from Zaire, particularly since closure of Burundi which had been a conduit [ID-H/M&DR].

4373 LcW MERRIDETH, Martin. (1989). The ivory trade in Congo. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 2.5. The Ivory Trade Review Group, Oxford. Annotation: Legal and illegal ivory trade substantial. Government export statistics, as elsewhere, do not agree with those kept by importing countries. Big game hunting permits freely given to those who apply, both residents and outsiders. Significant amount of export no doubt originated in Zaire, smuggling route is well organized and obtaining Congolese permits for export not difficult. Local carving industry does not use significant amount, probably about 2,500 to 3,000 kg per year [ID-H/M&DR].


4376 LcwW MERZ, Gunter and HOPPE-DOMENIK, Bernd. (1991). Distribution and status of the forest elephant in the Ivory Coast, West Africa. Pachyderm, 14:22-24. Annotation: Forest elephants once populated whole west and northwest African region. Until end of 19th century, elephants found in all parts of West African forest zone. Continued human population growth and resultant land requirements impinged on elephant range. By 1985, over 90% of the tropical forests destroyed, the last intact primary rain forest being restricted to the TaiNP. Results from 1988/89 survey of mammals which included population count of 1,520 elephants understood to split up into 20 isolated subpopulations, largest concentration in vicinity of TaiNP [ID-H/M&DR].


made up of juvenile dental material, are located. Structures of upper and lower dP2’s and dP3’s are described and illustrated. A comparison is made with deciduous premolars known in other tetralophodont gomphotheres, which yields information on evolutionary traits of dP2-3’s." [E/ECM].


UNEP/GRID/EARTHWATCH/GRID.


4384 LiuW Michelmore, Frances, Beardsley, Karen, Barnes, Richard F. W., and Douglas-Hamilton, Iain. (1994). A model illustrating the changes in forest elephant numbers caused by poaching. African Journal of Ecology, 32(2):89-99. Annotation: GIS was used to analyze field data on abundance of elephant dung-piles in Gabon and Cameroon. Curvilinear relationships between dung-pile density and distance to nearest road or village were used to calculate numbers of dung-piles between contours and total for each country. Comparisons between undisturbed and heavily poached elephant populations suggest that total forest elephant population in central Africa has been reduced by 44% as result of poaching. Forest elephants may be more vulnerable to poaching than previously thought because two-thirds of Congo’s elephants live within two day’s walk of a road or navigable river [ID-H&M&DR].


Annotation: Protocol provides format for systematic collection of information and samples to add to existing knowledge [E/ECM].


mation from national ivory importers association. Japanese market tends to require larger tusks than average. Estimated number of elephants required for gross ivory imports over past decade ranged from about 3,100 to about 23,000 yielding 79,122 kilos and 475,666 kilos in 1986 and 1983, respectively [ID-H/M&DR].


4427 LicW Milliken, Tom. (1994). The African elephant: another round at COP9. *Swaia*, 17(5):16-18. *Annotation*: Situation facing ninth meeting of CITES which is that distribution and population are not uniform through range states. Some states, particularly in southern area, need population control. Economics of management is problem throughout continent and SACIM countries propose that utilization of products, other than ivory gleaned from culled populations could alleviate the situation. Sudan’s proposal focuses on eliminating ivory stockpile [ID-H/M&DR].

4428 LicW Milliken, Tom. (1994). Current trade in, demand for and stockpiles of ivory in range and consumer states. In *The African elephant in the context of CITES* 19-23 September, 1994 Kasane, Botswana. Part B Background Papers, London, United Kingdom. Department of the Environment, pp. 49-57. *Annotation*: Information from two ongoing projects: assessment of ivory seizures or confiscations which have occurred since 1989, and assessment of ivory stockpiles held in Africa. Data on Bad Ivory Database (BID) contains over 2,500 individual records on ivory seizures in 30 countries, majority involving confiscations of worked ivory products illegally imported as personal effects. Major transactions are those involving over 50 kg or 15 tusks, numbered about 100 and dealt with total weight of 34,724 kg. At time of ivory ban, large quantities of ivory were held by government authorities or government-authorized dealers in African range states. Caldwell and Luxmoore’s 1990 (Reference no. 3001) estimation suggested minimum of 271 tons in 13 African countries and additional 683.7 tons in 7 other countries. Rate of Africa’s ivory stockpiles increase needs to be seriously assessed. Their existence poses law enforcement and security problems, is also issue of economic and political importance [ID-H/M&DR].

4429 LkcW Milliken, Tom. (1994). A preliminary assessment of the elephant hide trade from South Africa. In *The African elephant in the context of CITES* 19-23 September. 1994 Kasane, Botswana. Part B Background Papers, London, United Kingdom. Department of the Environment, 71-76. *Annotation*: Economy and sustainability of elephant hide trade in southern Africa, which is largely based on culling exercises carried out in KNP and in areas of high population in Zimbabwe and northern Botswana, though most of the latter country’s exported hides were from neighboring countries and had been tanned there. Impact of hide trade on status of African elephant has been negligible. It can be demonstrated that production of hides in South Africa and Zimbabwe has consistently represented a sustainable offtake [ID-H/M&DR].


4436 BicW Milner-Gulland, E. J. (1993). An econometric analysis of consumer demand for ivory and rhino horn. *Environmental & Resource Economics*, 3:73-95. *Annotation*: Econometric model is used to describe consumer demand for ivory and rhino horn, using Hendry research methodology. Demand for ivory in Japan was found to be primarily income led, with elasticity of 0.75. International trade restrictions have had a profound effect on ivory market since 1985 [ID-H/M&DR].


4439 LujW Milner-Gulland, E. J. and Beddington, John R. (1993). The relative effects of hunting and habitat destruction on elephant population dynamics over time. *Pachyderm*, 17:75-90. *Annotation*: Over last 200 years the ecology of Africa has changed substantially. One change is decline of continental population of African elephant. Two major contributing factors: reductions in carrying capacity for the species due to habitat change, and hunting for ivory. Relative importance of habitat loss versus hunting in driving population decline at issue for several years. Attempts to tease out effects of two factors on elephant numbers over last two centuries, and effects of each for future [ID-H/M&DR].

Penalty that varies with output of poacher more effective against poaching than fixed penalty. Probability of capture is factor in poacher’s decision to hunt. Incentives to hunt are modeled for open access situation, industry structure for local poacher, and for monopolist employing organized gangs. Local poachers respond to local investment schemes, but deterrence of organized gangs can only be achieved with improved law enforcement operations [ID-H/M&DR].

4441 LiuW Milner-Gulland, E. J. and Mac, Ruth. (1990). The impact of the ivory trade on the African elephant *Loxodonta africana* population as assessed by data from the trade. *Biological Conservation*, 55(2):215-229. **Annotation**: Total quantity and tusk sizes of African elephant ivory entering international trade over the last decade. Investigates how different levels of hunting and different strengths of selectivity by hunters in favor of larger tusks would produce different ivory tonnages and tusk size distributions in the trade. Removal of 12-13% of elephants each year, combined with hunters’ preference for elephants with larger tusks, would be expected to produce quantities of ivory and tusk size distributions compatible with those reported in international trade [ID-H/M&DR].


"A brief introduction and overview of mammoths in the Northern Hemisphere" [E/JS].

Netherlands (copyright date 1991).


Germany [ECM].

5(1):57-64 [summary in English]. Annotation: Account of a mammoth excavation and reconstruction project in Siegsdorf, West Germany [ECM].


A crisis in Africa. Los Angeles Times. [4 April, Part II]: page 5.

The impact of elephant and goat grazing on the endemic flora of South African succulent thicket. Biological Conservation. 68(1):53-61. Annotation: Vegetation community succulent thicket is important center of endemism for succulents and geophytes in vicinity of AENP. Inside the Reserve, it is threatened by elephants, outside by goats. Elephant grazing has moderate effect on plants and not reduced rich Crassulaceae flora in shrub microsites. Endemics were present in ungrazed sites but fewer recorded (63%) in elephant and even less (58%) in goat grazed study areas [ID-H/M&DR].

A noble effort to return three ["Tschombai" (male) "Durga" (female) and "Owalla" (female)] wild bom, captive raised elephants to Africa. It was hard to keep myself focused on what I originally believed was his actual motivation [RAC]. See Reference nos. 1961, 1962, 1963, 1964, 1965 [MPK].

Mauritania became the 144th Party to accede to the treaty, going into effect 11 June 1998 [E/SLS].


Group size composition and age structure of elephants. Methodology from Amboseli Elephant Research Project. Purpose of survey to get information on elephant biomass for land use study. Additional information indicated young, growing population...
4486 BicB  Moss, Cynthia J. (1990). CITES 1989: a personal view. Swara. 13(1):8-12. **Annotation**: Commentary from an elephant researcher of 22 years on the 1989 meeting which produced the ivory trade ban; saving elephants "...a global responsibility and the world must join in the effort" (E/SLS). Battle that preceded CITES vote described. Contentious issue was to transfer African elephant from Appendix II to Appendix I of CITES convention declaring the species endangered and halting international trade in its products. Proposal advanced by countries whose elephants were threatened by poaching, opposed by countries where elephant population was on an increase [ID-H/M&DR].

4487 LmwW  Moss, Cynthia J. (1990). Elephants in Tarangire. Pachyderm. 13:26-30. **Annotation**: The park, covering 2,600 sq. km, has estimated population of 2,319. Elephants moved into Park and surrounding Lolikisale Game Controlled Area and Simanjaro Plains as a result of poaching and harassment in other areas. Poaching of TaNP populations severe in 1970s with carcass ratio of 32% reported for 1977, this had decreased to 6.7% by 1988. Age and sex structure of elephant population in TaNP ecosystem covering about 20,500 sq. km supporting population of about 6,110 [ID-H/M&DR].

4488 LrbW  Moss, Cynthia J. (1990). The young ones. BBC Wildlife. 8(11):738-744. **Annotation**: Imagine growing up in a family where your mother, sisters, aunts and cousins lavish all their care and attention on you. For elephants, such an upbringing produces not spoiled children but well adjusted adults [ID-H/M&DR].


4496 LucW  Moss, Cynthia J. (1997). Taskless: an Amboseli execution raises questions about Kenya's conservation priorities. Swara, 20(3):25-26. **Annotation**: Outside ANP, a Maasai's cow was killed by an elephant named "Taskless". Warden and rangers sent to kill offending elephant, the 35 year old matriarch of herd was shot. Better way is to promote and fund scheme to compensate for cows killed. Shooting elephants of killing of cattle is dangerous and negative approach [E/ECM].

4497 LkqC  Moss, Cynthia J. (1999). Thirty baby elephants. Animal Watch [published by the American Society for the Prevention of Cruelty to Animals], 19(1):21-23. **Annotation**: In 1998, 30 calves from 2 to 7 years old were violently, but legally, taken from their families in private reserve Tuli Block in Botswana for sale to foreign buyers. South Africa's National Council of Society for the Prevention of Cruelty to Animals, deeply disturbed by facility where calves were chained and "trained", filed cruelty charges against owner, Riccardo Ghiazza [E/ECM]. See Reference nos. 3868, 3872, 3873, 3874, 4905, 5420 [MPK].

4498 BbgW  Moss, Cynthia J. and Colbeck, Martyn. (1993). Echo's entourage. BBC Wildlife. 11(1):34-38 [+ supplement: the elephant album, 16 pp.]. **Annotation**: Photos of: resting trunk on tusk; mother ("Grace") carrying a premature calf with tusks and trunk; mating (copulation); 'pandemonium'; birth; musth-males fighting [MPK].


MUNDY, P[eter]. J. and HAYNES, Gary. (1996). Oxpeckers and elephants. Ostrich, 67:85-87. Annotation: Despite repeated reports that oxpeckers do not perch on African elephants, authors reported, with photos, that yellow-billed oxpecker (Buphagus africanus) and red-billed oxpecker (Buphagus erythrorhynchus) use elephants as hosts. When elephants are in poor condition, they become much more suitable to oxpeckers; cf. Reference no. 3885 [JS].


MURINDAGOMO, F. (1992). Rates of tree loss and regrowth of Brachystegia woodland. In Elephant management in Zimbabwe (2nd edition). Dept of National Parks and Wild Life Management, Harare, Zimbabwe, 69 pp. Annotation: Trees along southern boundary of SWRA measured to compare elephant damage in Miombo woodland inside and outside Reserve. Difference between tree heights in the mature age is clear-cut, study noted loss per annum of trees over 5 m within the Research area. Elephant impact on the regeneration and recruitment classes is more difficult to assess than for the mature age classes. High frequency of young trees inside fence supports view that there is strong regeneration and recruitment [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].

MURPHREE, M. (1992). Ivory production and sales in Zimbabwe. Department of National Parks and Wild Life Management, Harare, Zimbabwe, 9 pp. Annotation: Reviews system of recording movement of ivory through national store in Harare. It is tedious to withdraw specific information from system which is comprised of six different sets of records handled entirely on a manual basis. Ivory production and sales, average price and earnings from ivory from 1985 to 1991 presented along with information providing source of ivory for each of these seven years [ID-H/M&DR].
November 2000

Elephant/Proboscidea Bibliography: 1987-2000

January 2000


4527 LnjW


4528 EdcW


4529 EcwW


4530 BicB


4531 LbcW


4532 LmwW

Nohlová, D. E. and Balakrishnan, M. (1991). Large herbivores in upper Lupande Game Management Area, Luangwa Valley, Zambia. African Journal of Ecology, 29(2):93-104. Annotation: Upper Lupande Game Management area in Luangwa Valley currently supports good populations of 16 large and medium-sized herbivores. Impala most abundant, 34% of the total population estimates, followed by buffalo (19%), zebra (12%), wildebeest (10%), warthog (8%), elephant (6%) and hippopotamus (3%). Other species made up remaining 8%. Survey zone contained a herbivore biomass of 10,796 x 103 kg. Elephants contributed 50.2% and buffalo 25.1% of total herbivore biomass of area. Estimated maximum sustainable off-take potential in Upper Lupande was 1110.14 x 103 kg per annum. Distribution of most of species studied suggest favorable recruitment status. Species-specific distribution patterns and densities in survey zone [ID-H/M&DR].

4533 LicW


4534 EceW


4535 *adU


4536 LkcW

Nel, Michelle. (1996). Focus on National Parks Board. Keeping Track, October/November:45-49. Annotation: Two-part article, second (“The People’s voice”) of which is on elephants. Culling in KNP suspended last year after a public debate. The Board conceded it did not have proof of need to cull elephants, but reiterated that, wherever possible, elephants will be translocated to other reserves and the population be allowed to increase naturally [E/ECM].

4537 LjwW


4538 *vhU


4539 *vecB


4540 LchW


4541 LmcW

Newmark, William D., Manzanza, David N., Gamassa Deo-Grattas, M., and Sariko, Hashan I. (1994). The conflict between wildlife and local people living adjacent to protected areas in Tanzania: human density as a predictor. Conservation Biology, 8(1):249-255. Annotation: Questionnaire survey of 1,396 people living adjacent to ArNP, KNPPR, TaNP, LMNP and MNP and SGR: over 71% reported problems with wildlife. Relative frequency of reported conflict was significantly and inversely related to human density on lands adjacent to protected area. Of people reporting problems, 86% reported crop damage, 10% reported killing of livestock and poultry [ID-H/M&DR].

4542 LmwW


4543 LicW


4544 LcmW

Ngure, Njoroje. (1992). History and present status of human-elephant conflicts in the Mwatate-Bura area, Kenya. Ph.D. dissertation, MSc, University of Nairobi, xv, 162 pp. Annotation: Describes and evaluates history, nature and extent of human-elephant conflicts between protected TNP West and adjacent human settlements. Questionnaire collected information on attitudes, perceptions, awareness and data on current crop damage by elephants. The elephants were perceived as the worst mammalian pest, more because of their size than the actual damage. Increased encroachment by subsistence cultivators on land previously only used for livestock and wildlife and widespread poaching, which made areas closer to the park relatively safer for elephants, increased crop damage level. Attitudes towards wildlife, including elephants, fairly favorable, but utilitarian resentment of wildlife conservation which did not benefit incurred losses. Fencing and ‘controlled hunting’ recommended to resolve conflicts [IDH/M&DR].

4545 LtwW

wildlife in Taita-Taveta District bordering TNP [ID-H/M&DR].


4560 LucW NIOKA, Theuri. (1997). No hunting in Kenya. Swara, 20(3):32-33. Annotation: Possible revival of sport hunting in Kenya heavily featured in national and international media. At center of debate are influential ranch owners and director of Kenya Wildlife Service, Dr. David Western, who stated that KWS favors experimental reintroduction of sport hunting. The author states, “If KWS cannot control overcollecting of ostrich eggs, poaching for game meat and the illegal entry of domestic livestock into parks, how will it control hunting? Hunters often have little respect for regulations” [E/ECM].

4561 LumW NIUMB, Stephen John. (1993). Effects of poaching on the population structure of elephants in Meru National Park. D. Phil. Thesis, MSc Moi University, Kenya, 61 pp. Annotation: Research done on age and sex structure of severely poached population. Poached population of Meru had fewer old adults and calves in comparison with ANP. No differences were detected in overall adult population but sex ratio in breeding individuals highly skewed towards females. Observed Meru elephant families maintained tight aggregations that stayed in Park during dry season and moved out during wet period. Seven family units with 227 members were individually aged and sexed and photo indexes made [ID-H/M&DR].


Norton, B. (1991). The African elephant: last days of Eden. Voyager Press, Stillwater, Minnesota, 128 pp. Also, Swan Hill Press, Shrewsbury. Annotation: Foreword: Richard E. Leakey. Introduction: AWF. Elephants are powerful yet gentle, intense, funny, complicated and communicative. Elephants play, express tenderness, enjoy being mischievous, exhibit rage, maintain close family ties, help each other. Over past decade poaching reduced numbers in sub-Saharan Africa from 1.3 million to 600,000 or less. Larger human populations caused habitat loss for farming and logging, crowding survivors into national parks and reserves where decision to cull or let them die of starvation must be made [ID-H/M&DR].


Novacek, Michael J. (1993). Reflections on higher mammalian phylogenetics. Journal of Mammalian Evolution, 1(1):3-30. Annotation: Branch containing Proboscidea (p. 21) includes Embrithopoda (extinct), Desmostylia (extinct), and Sirenia, merging from one common ancestor (i.e., unresolved polytomy) [JS].


Nummelin, Matti. (1990). Relative habitat use of duikers, bush pigs and elephants in virgin and selectively logged areas of the Kibale
Elephant Volume 2, Number 4

**214 Elephant Volume 2, Number 4**


**LmwW** O'CONNELL, Caitlin, HART, Lynette A., and ARNASON, Byron T. (1999). Comments on “Elephant hearing” [Journal of the Acoustical Society of America, 104(2):1122-1123 (1998)]. *Journal of the Acoustical Society of America*, 105(3):2051-2052. **Annotation:** “Reuter, Nummela and Hemila’s recent letter hypothesized that elephants may sense ground vibrations by bone conduction and use of the massive ossicles of their middle ears. Their inner ears also are specialized for low frequencies, having reverted to a reptilian-like cochlear structure that may facilitate detection of seismic signals. Although bone conduction could be used for detection of seismic signals, mechanoreceptors with neural transmission are also a possibility. For localization of 20 Hz signals, the pinnae are limited given the large wavelengths involved, unless higher harmonics are reliably present”; cf. Reference nos. 4885, 4595 [DD].


**LjwW** OKOUmassou, K[otchikpa], BARNES, R[jichard] F. W., and SAM, M. K. (1998). The distribution of elephants in north-eastern Ghana and northern Togo. *Pachyderm*, 26:52-60 [abstract in French]. **Annotation:** Togo’s elephants are found in the center and far north regions. Ghana’s elephants are found along the Sissili river in the west and southwest, and in the Red Volta and Morago river valleys. They move between Ghana and Togo along the Morago/Koulagouna river. Seen most often in Red Volta valley during wet season. Move northwards into Burkina Faso for dry season, southwards again in early wet season [E/ECM].


**LmwW** OLINDO, Perez M., DOUGLAS-HAMILTON, Iain, and HAMILTON, P. (1988). The 1988 Tsavo elephant count [extracts]. *Swara*, 11(3):23-24. **Annotation:** Reviews aerial survey in February 1988 which estimated population of 6,000 elephants in TNP ecosystem, decline from 42,000 in 1969 mainly from poaching. Area consisted of TNP with 4,300, a 75% decline since last major count in 1972, and another 1,000 in surrounding areas where there has been a decline of 87% in same period. Argues that international ivory trading ban is needed to reduce incentive of poachers [ID-H/M&DR].


**BrcC** OLSON, Debbie[Deborah]. (1999). Recipe for a successful artificial insemination. *Journal of the Elephant Managers Association*, 10(1):21-28. **Annotation:** In 1998 one Asian and two African elephants were successfully impregnated using artificial insemination. Contains...
4611 BdqC  

4612 EcjW  

4613 LncW  
OMARI, IImba, HART, John A., BUTYNSKI, Thomas M., BRIHASSHEWA, N. R., UPOKI, Agenonga, M'KEYO, Yuma, BENGANA, Faustin, BASHONGA, Mugunda, and BTJURUBUMWE, Norbert. (1999). The Iombowe Massif, Democratic Republic of Congo: biological surveys and conservation, with an emphasis on Grauer's gorilla and birds endemic to the Albertine Rift. Oryx. 33(4):301-322. Annotation: In 1996, the first biological surveys in 30 years revealed that significant areas of natural habitat and remnant faunal populations remain, but these are subject to ongoing degradation and over-exploitation. Elephants mentioned on pages 311, 321 [E/ECM].

4614 LnoW  

4615 LejW  

4616 LnbW  

4617 ErqC  

4618 LcuW  

4619 LciW  

4620 LLeW  

4621 LkjW  

4622 LkeW  

4623 LciW  

4624 BcqB  

4625 BcrB  

4626 BjeW  

4627 LcoW  
OSBORN, Ferrel V. and RASMUSSEN, L. E. L. (1995). Evidence for the effectiveness of an oleo-resin capsicum aerosol as a repellent against wild elephants in Zimbabwe. Pachyderm, 20:55-64. Annotation: Studies with free ranging elephants (HNP) suggest a Capsicum-based aerosol solution has validity as elephant repellent over both short (20-30 m) and intermediate (20-30 m) ranges and that Capsicum is short-term repellent. Preliminary results suggest this chemical may act as practical elephant deterrent which combines with aversive conditioning of problem elephants [ID-H/M&DR].

4628 LbcW  

4629 LdoW  

4630 LocW  

4631 EdpC  

4632 EaoC  

4633 BqC  

4634 LwtW  

4635 LctW  

4636 LmeW  
The 7,500 elephants outside rangelands were mainly in AbNP and MKNP, MENP and Mau Forest [ID-H/M&DR].


4640 LicW Overtton, Greg. (1998). Letter from the Editor. Pachyderm, 26:13. Annotation: If resumption of ivory trade increases poaching, the trade should be stopped; if trade is shown to benefit conservation, ivory trade should be reopened [ECM].

4641 BtqC Owen, David. (1992). One-ring mud show. The New Yorker, April 20:85-90, 92-99. Annotation: Portions of life history of Bucky Steele, who has worked with baboon, giraffes, hippos, horses, bears, and elephants. Elephants are inseparable part of his life, and he, or one of his staff, is in constant contact with his elephants all year, including holidays [JS].


4647 LiW Owens, Delia and Owens, Mark. (1997). Gift: a personal account of elephant conservation. Swara, 20(3):14-21. Annotation: The authors, who have battled for over a decade to preserve one of Africa's finest wildernesses, give a firsthand account of their involvement with North Luangwa's elephants and argue their case for retaining the CITES ban [E/ECM, p. 14].


4649 LcuW Owens, Mark and Owens, Delia. (1992). Two against the odds: our fight to save Zambia's elephants. International Wildlife, 22(5):4-13. Annotation: Authors have been working to wrest North LNP from control of bandits and develop it into a resource to benefit local people [JS].


4653 LucW Pacelle, Wayne. (1997). Tax dollars fund trophy hunting. HSUS News, 42(4):7-8. Annotation: USAID has provided more than $25 million to 8 groups and promote internationally, program in Zimbabwe called CAMPFIRE. Hunters pay thousands of dollars to shoot African elephants "in what is the sporting equivalent of shooting a parked car". “CAMPFIRE's doctrine reinforces animals to the roles of marauders and nuisances and suggests that humans have no compassionate responses to animals' plight and well-being" [E/ECM].


The most effective way to stop the killing of elephants is to ban the ivory trade. All other options keep ivory in the marketplace and thereby encourage demand for ivory and its products.  

African elephant products: a failure in conservation. In The future of Botswana's elephants, Proceedings of a workshop organised by The Kalahari Conservation Society in conjunction with The Department of Wildlife and National Parks. 10 November 1990, Hancock, P., Editor, Gaborone, Botswana, Kalahari Conservation Society, pp. 67-71. Annotation: Elephant management with respect to ban on elephant products and its effect on rational economic development versus simple conservation of a species. Development of national and regional industry based on elephant products including ivory suggested as rationale which should be available to the SACIM countries [ID-H/M&DR].


In the presence of elephants: an excerpt from "Silent thunder: in the presence of elephants". Natural History, 79(8):89-98. Annotation: Katy Payne (discoverer of infrasonic communication in elephants) came across elephant behavior she had never seen before [E/JS].


4689 LijW PEARCE, David W. and BURGESS, Joanne. (1989). The value to Africa of the raw ivory trade. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 4.2. The Ivory Trade Review Group, Oxford. Annotation: Value of elephants in tourism needs to be equated with value from export of ivory. No attempts made at former but figures for value of exports based on Customs statistics noted for nine countries. Ivory exports do not provide significant returns in any country, it is assumed that much of revenue accrues to private individuals, even non-nationals [ID-H/M&DR].


4696 LieC PERLEZ, Jane. (1990). Ivory trading ban said to force factories to shut. New York Times [22 May], page A14. Annotation: Quote from Esmond Bradley Martin — "...in Beijing only 5 of 550 ivory carvers are still employed at the Beijing Ivory Carving Factory, which last year was the biggest in the world" [E/ECM].


of the African elephant to be effective. Familial and care giving aspects of elephants, suggests conservation of this species very important to humans [ID-H/M&DR].


Pierre. (1992). Elephants: le dossier sud-Africain. La Courrier de la Nature, 131:22-24, 29. Annotation: Analyses southern African attempts to return elephants to Appendix II of CITES so products can be sold and exported. Formation of SACIM, suggests population figures those countries give and management programs they say they have are not as strong as indicated [ID-H/M&DR].


Pierce. (1994). L'Afrique du Sud demande, une fois de plus, a reprendre le commerce de l'ivoire! Le Courrier de la Nature. 131:22-24, 29. Annotation: Analyses southern African attempts to return elephants to Appendix II of CITES so products can be sold and exported. Formation of SACIM, suggests population figures those countries give and management programs they say they have are not as strong as indicated [ID-H/M&DR].

Annotation: Zimbabwe's elephant populations, negative aspects of bans, outlines range of elephants in Zimbabwe inside and outside protected areas and need to control numbers so human use needs and elephant populations can co-exist. Focus on utilization of wildlife and elephant as a resource. Conflict between western views of conservation and economic development in range states and need for community involvement at local level, Zimbabwe's CAMPFIRE program [ID-H/M&DR].

Annotation: See Reference nos. 2944, 5766 [MPK].

Annotation: Faecal counting techniques used to census five large herbivore species during 1988 and 1989 in Parc National des Volcans, Rwanda. Population density estimates for standing crop counts of feces usually correct counts for defecation rate of the animal and decomposition rate of dung, assuming decay rate is constant. Seven elephants were present in study area during June-August and densities for area of each habitat type gave a value of 7.04 elephants [ID-H/M&DR].

Annotation: Based on observation in ANP, the author describes the behavior of male elephants in musth. The musth condition appears to announce that a male is prepared to aggressively defend or gain access to an estrous female [ID-H/M&DR].

Annotation: Ten year study in ANP. Occurrence, duration of musth is age related. Males more aggressive then, spend more time with females. Though males in musth were observed year round, frequency was highest during and following two rainy seasons. In general, the better the rainfall the higher the frequency of males in musth. Musth periods were asynchronous, each male came into musth at specific time of year with period relatively consistent, particularly in older males. Males in elephants is similar to physical, behavioral manifestation of rut in other male mammals. However, since estrous cycle in female elephants is less clumped than in most ungulates, male elephants have different temporal pattern of rutting [ID-H/M&DR].

Annotation: Research conducted in ANP, on vocalization among elephants, specifically audible and inaudible or ultrasonic sound communication [ID-H/M&DR].

Annotation: Predictions derived from game theory suggest animals should not signal intentions during conflict situations. During musth, male elephants (in ANP) announce a state of heightened aggression with signals that are unbluffable. Since smaller musth males in poor condition are able to dominate larger, normally higher-ranking, non-musth males in good condition, musth provides a useful tool with which to examine possibility of honest signaling of motivation, rather than of fighting ability. Despite highly aggressive state of males in musth, escalated contests are rare. Behavior of musth and non-musth males suggests opponents able to estimate their often rapidly changing roles in asymmetries with relative accuracy. Elephants have asynchronous sexually active periods, hence resource value varies both with age and fluctuating sexual state of each individual [ID-H/M&DR].


1997. Joyce H. and Moss, Cynthia J. (1989). Elephant mate searching: group dynamics and vocal and olfactory communication. In: The biology of large African mammals in their environment (ed. P.A. Jewell & G.M.O. Maloy), 61:111-125. Symposium of the Zoological Society of London. Clarendon Press, London. Annotation: Male and female live in two social systems and range over large areas, often at low densities at ANP. Availability of both estrous females and musth males at any particular time is extremely low. Females search for musth males by moving into larger aggregations and possibly listening for their calls and following their urine trails. Estrous females attract males by conspicuous postures and behaviors, particular vocalizations and olfactory signaling with urine. Musth males search for females by associating with large cow/calf groups, by covering long distances, by listening for the females’ loud, very low frequency calls made by African elephants in ANP, and contexts in which they occurred. Calls had fundamental frequencies ranging from 14-35 Hz and sound pressure levels as high as approximately 103 dB at 5m from the source. Very low frequency sounds are subject to little environmental attenuation, suggesting that sounds at the frequencies and sound pressure levels measured from elephants may be audible to conspecifics several km away. Long-term records on behavior of elephants and on contexts of specific call types suggest that
elephants make use of infrasound in spatial coordination of groups and as they search for mates [ID-H/M&DR].


4758 BvoB PORTER, Calvin A., GOODMAN, Morris, and STANHOPE, Michael J. (1996). Evidence on mammalian phylogeny from sequences of exon 28 of the von Willebrand Factor gene. Molecular Phylogenetics and Evolution, 5(1):89-101. Annotation: Dugong (Sirenia) joins Procavia (Hyracoida) and this branch joins the branch of living elephants ( Proboscidea), and these four taxa join the aardvark (Tubulidentata), and the new branch joins elephant shrew (Macroscelidea). [JS].


4770 LemW PRINS, Herbert H. T. and DOUGLAS-HAMILTON, Iain. (1990). Stability in a multispecies assemblage of large herbivores in East Africa. Oecologia, 83:392-400. Annotation: Total biomass figures extrapolated from 9 years of aerial survey data between 1959 and 1984. Total biomass dominated by elephant and buffalo though herbivores averaging over 20 kg were counted. Individual species had large fluctuations in numbers, but in total herbivores assemblage different species compensated for fluctuations of other species. Result was overall constancy of herbivore biomass. Conclusion is total food consumption in LMNP system varied much less through the years than species composition of herbivores [ID-H/M&DR].

4771 LmcW PRINS, Herbert H. T. and VAN DER JEUGD, Henk P. (1993). Herbivore population crashes and woodland structure in East Africa. Journal of Ecology, 81(2):305-314. Annotation: Bush encroachment in LMMPN between 1985 and 1991 showed shrub cover increase of 20% increment independent of initial (1985) bush cover. In same period elephant density decreased from 6 to 1/sq. km due to poaching, but bush encroachment preceded poaching. Shrub establishment in 2 areas coincided with anthrax epidemics which reduced impala population. Diameter increment of Acacia tortilis was 5.24 mm/year comparing well with 1961 measurements when earlier anthrax outbreak hit impala. Size measurements of A. tortilis indicated another even-aged stand establishment at end of 1880s, originating from bush establishment caused by rinderpest. [ID-H/M&DR].


4779 LkcW PYE-SMITH, Charlie. (1998). Living with elephants. People & the Planet, 7(4):18-19. Annotation: Aim of Chobe Enclave Conservation Trust in Botswana is to generate profits for community through sale of a hunting quota of elephants. Over the past few years, it has...
January 2000

Elephant/Proboscidea Bibliography: 1987-2000

4780 *evU

4781 *vwU

4782 *vwU

4783 *vwU

4784 *vwU

4785 EftC

4786 BroB

4787 LakW

4788 LbzB

4789 LdpC

4790 LmbW

4791 LmbW

4792 EdqC

4793 EcjW
Rahman, Md. Khalilur. (1996). Bangladesh protected areas: wildlife. *Tigerpaper*, 23(3):9-13. **Annotation:** Table 1 lists wildlife sanctuaries, national parks, game reserves in Bangladesh, including those which preserve elephants. Table 2 lists endangered and threatened wildlife of Bangladesh, including elephants [ECM].

4794 +gVB

4795 BdqC

4796 EcjW

4797 EcwW

4798 EmcW

4799 EcjW

4800 *evU

4801 LcuW

4802 EwmW

4803 ErbC

4804 BroB


RASMUSSEN, L. E. L. (1998). Chemical communication: an integral part of functional Asian elephant (*Elephas maximus*) society. *Ecoscience*, 5(3):410-426 [in English, abstracts in English and French]. **Annotation:** Combinations of compounds (urine, temporal gland secretions, breath) that retain bioactivity throughout chemical extractions and playback experiments, based on behavioral and/or chemosensory effects of whole exudate chemical signals on lifestyles, especially mating. Several chemical signals deciphered, one is a preovulatory female-to-male pheromone, (Z)-7-dodecen-1-yl acetate. This pheromone, and other potential chemical signals, compare to compounds in insect pheromone blends [E/ECM, abstract].


RASMUSSEN, L. E. L. and MUNGER, Bryce L (1996). The sensorineural specializations of the trunk tip (finger) of the Asian elephant, *Elephas maximus*. *The Anatomical Record*, 246(1):127-134. **Annotation:** Dorsal extension of Asian elephant trunk tip has remarkable mechanical dexterity, used in variety of behaviors including grasping food and tactile and chemosensory recognition via vomeronasal organ. Unique sensory innervation of this specialized region in trunk [E/ECM].


RASMUSSEN, L. E. L., LEE, Terry D., DAVES, G. Doyle, Jr., and SCHMIDT, Michael J. (1993). Female-to-male sex pheromones of low volatility in the Asian elephant, *Elephas maximus*. *Journal of Chemical Ecology*, 19(10):2115-2128. [Annotation: For several weeks prior to ovulation, urine and cervical mucus of female Asian elephants contain extractable chemical agents of low volatility that elicit a high frequency of flehmen responses from bull elephants as an integral part of mating. During the course of a project to determine the agent(s) and describe responses associated with female to male sexual communication, authors have identified an unusual compound, indolo-[2,1-b]quinazoline-6,12-dione (tryptanthrine) [E/ECM, abstract].]


used to ascertain cause of poor tusk development in particular areas [ID-H/M&DR].


RAUTENBACH, Chris and PONTIER, Harmina. (1993). Elephant distributions in the Hluhluwe River: some observations on the possible effect of the drought. LINKHILLS [Newsletter], p. 4. Annotation: Drought in South Africa in 1992 caused differences in feeding, water utilization and distribution of 30+ elephant population compared to 1989-1991. Group sizes were smaller, animals remained in close proximity to surface water and drank water also used by livestock. In previous years they ranged as far as 40 miles for water sources, drank every third or fourth day, normally from holes they dug in river bed for subterranean water [ID-H/M&DR].


REDMOND, Ian [M]. (1989). Elephanticide. World Magazine (London), 29:48-56. Annotation: Title is apt. Describes behavior and ecology of the unique elephants in MENP. Suggests the anti-poaching action must be coupled with reducing the demand for ivory which is fueling the illegal slaughter [MPK].


REDMOND, Ian [M]. (1989). Hot ivory and cold realities. BBC Wildlife, 7(9):564-572. Annotation: Links elephant decline in Africa to illegal ivory trade. Estimated elephant population declined from 1.3 million to 623,000 or more pessimistic figure of 353,000. Only two percent of elephant’s range has effective protection; only elephants in those areas likely to survive if poaching continues. If profits rise, these areas, and men guarding them, would be in jeopardy. Lists countries involved as producers, smugglers, and consumers. Producers are 36 African nations with elephant populations. They can be divided into east and southern African where animals are visible (i.e., live in open bush and can be counted from air) and Central and West African where they are mostly invisible (live beneath canopy of tropical rain forest, where counting is difficult) [ID-H/M&DR].


tions of elephants have excavated large caves in search of salts within layers of volcanic ash [ID-H/M&DR].


4873 LjpW REDMOND, Ian M. and SHOSHANI, Jheskel. (1987). Mount Elgon’s elephants are in peril. Elephant, 2(3):46-66. Annotation: Seven year study on Mount Elgon elephants, which in early 1970s estimated to be about 1,200, but may now, due to poaching, be lower than 100. This somewhat isolated population’s unique ‘salt mining’ activity has resulted in development of caves within the mountain. Elephants normally entered caves during early evening and remained up to six hours excavating and eating salty rock materials. Frequency of visits appear to increase as rainfall decreases [ID-H/M&DR].


4877 *avU REESE, David S. (1996). The extinct pygmy mammals of Cyprus. Sunjet, Cyprus Airways in-flight magazine, 9(2):18-22. Annotation: For 450 years, bones of extinct fossil mammals of Cyprus have been interpreted as being remains of saints, early Christian martyrs, antediluvian beasts and dragons. In the early 1900s these bones correctly identified as pygmy mammals - a pig-sized hippopotamus and a pony-sized elephant” [E/ECM, p. 19].

4878 *ihU REESE, David S. and KRZYSZKOWSKA, Olga H. (1996). Elephant ivory at Minoan Kommos. In Kommos 1/2: the Kommos region and houses of the Minoan town (ed. J. W. Shaw and M. C. Shaw), pp. 324-326 + 2 pages of references. Princeton University Press, Princeton, total pages not provided. Annotation: There are two cubes of elephant ivory from late Minoan III contexts in Central Hillside. The cubes are described as 'partly worked ivory’. Minoan Kommos has not yielded any finished objects of ivory, but these pieces provide valuable evidence for ivory working [E/ECM, p. 324].


4883 LmcW REULING, M. A. (1991). Elephant use of the Marang Forest Reserve in northern Tanzania. MS thesis, University of Washington, vii, 82 pp. Annotation: Goals: to evaluate importance of Marang Forest Reserve for elephants of LMNP, to evaluate use of dung to measure population, to collect conservation information about the reserve. Found that the reserve was an important secondary habitat for migrating elephants from Lake Eyasi and Ngorgoro, but not during the study period at least from LMNP. Population estimate using dung method of Barnes and Jensen (Reference no. 2818) gave poor estimates because model assumptions were not fulfilled. Proposals that reserve status kept and areas developed for tourism with walking safaris ID-H/M&DR].

4884 +gvB REUMER, Jelle W. F. and de VOS, John (eds). (1999). Elephants have a snorkel! Papers in honour of Paul Y. Sondaar. DeinseaA 7 (annual of the Natural History Museum, Rotterdam):1-422. Annotation: This special issue of DeinseaA is an indispensable volume with contributions by eminent scientists on various topics with emphasis on Quaternary mammals and on island evolution. The cover is adorned with a color illustration of an elephant crossing a sea-strait, by Hans Brinkrink. “Elephants have a snorkel!” is an exclamation often uttered by Paul Y. Sondaar when lecturing on mammoth migrations to islands. Elephants are indeed a common element of the endemic vertebrate fauna on oceanic islands, and they are often reported to cross sea-straits using their trunk as a snorkel. The exclamation illustrates Paul’s interest in island evolution as well as his curious and phantasy-rich mind” (from inside front flap of dust cover) [JS/ECM].

4885 BapB REUER, Tom, NUMMELA, Sirpa, and HEMILA, Simo. (1998). Elephant hearing. Journal of the Acoustical Society of America, 104(2):1122-1123. Annotation: “Elephants’ vocalizations and movements have recently been shown to produce seismic waves (Rayleigh waves). This may be relevant for the well-known long-distance communication of these animals. It is suggested here that elephants may sense ground vibrations as a result of bone conduction producing a differential vibration of the middle ear ossicles in relation to the skull. This hypothesis is supported by the exceptionally massive ossicles of the Indian and African elephants. The acoustics of bone conduction is reviewed and related to the anatomy of the elephant middle ear”; cf. Reference nos. 4595, 4596 [E/ECM].


Annotation: South African judge has ruled in favor of National Council of Societies for the Prevention of Cruelty to Animals in a case involving 30 baby elephants, some as young as two, separated from their herds in TGR and exported to South Africa. Dealer Ricardo Ghiazza was reportedly planning to sell them to parks and zoos in countries including Germany, China, Switzerland, and possibly United States. NSPCA will be able to seize the elephants and initiate a long-term plan to rehabilitate them and reunite them with their families. See Reference nos. 3868, 3872, 3873, 3874, 4497, 5420 [E/ECM].
17,000, of which about 5,200 considered to be forest elephants. Of these, only about 11,500 (3,500 forest and 8,000 savannah ele­phants). Of these, only about 11,500 (3,500 forest and 8,000 savannah ele­phants). Of these, only about 11,500 (3,500 forest and 8,000 savannah ele­phants)
lution, systematics, in Santa Rosa Islands (California) [MPK].


4928 ROTHCHILD, Bruce M., XIAOMING, Wang, and SHOSSHAN, Jeheesk. (1994). Spondyloarthropathy in proboscideans. Journal of Zoo and Wildlife Medicine, 25(3):360-366. Annotation: Spondyloarthropathy unequivocally diagnosed in mammoths and elephants on basis of fusion of vertebral bodies with marginal syndesmophytes, zygoophyseal joint fusion, and peripheral erosive arthritis and fusion and was easily distinguished from infection spondylitis and diffuse idiopathic skeletal hyperostosis... Infections of diabetes or sexually transmitted arthritis are most likely candidates for this phenomenon [E/ECM].


4930 ROTTICH, Nehemiah [K.] a. (1992). Total ban on ivory trade still the only way to save the elephant. Swara, 15(1):6-7. Annotation: Situation suggests that in view of lack of law enforcement capacity and knowledge of how many elephants range states have, lifting of ivory ban would not be reasonable [ID-H/M&DR].

4931 ROTTICH, Nehemiah K. [a.]. (1994). The elephant is not yet safe! Swara, 17(5):5. Annotation: Need for ivory ban is felt in view of lack of law enforcement capability and unclear knowledge of status of elephant populations [ID-H/M&DR].


International Symposium on Geology and Environment, 31 January-2 February 1996, 133-145. Annotation: "Occusal motion in Zygolophodon, Tetralophodon, Anancus, and Stegolophodon was studied based on the various wear surface configurations of their cheek teeth" [E/ECM].
1997. Sponsored by Representative Jim Saxton (NJ) with 26 cosponsors, the bill requires the Secretary of the Interior to direct funds to projects aimed at conserving the animals in the wild. Captive breeding projects are not eligible for funds unless the elephants are to be released to the wild” [ECM].


SANITAPILLAI, Charles. (1993). Elephants under threat in Laos. Gajah, 10:10. Annotation: Between 1990 and 1992, about 50 elephants were killed for tusks, skin and meat. Ivory carvers used hand tools to make trinkets for sale to Thai tourists [E/SLS].


SANITAPILLAI, Charles. (1997). The Asian elephant conservation: a global strategy. Gajah, 18:21-39. Annotation: While there are over 600,000 African elephants in 4.5 million km², in 37 countries in Africa, even optimistic figures indicate that there are no more than 60,000 free-ranging Asian elephants, inhabiting a total of 500,000 km² in 13 countries stretching from India to Indo-China [E/ECM, p. 21].


5020 *evU **SAUNDERS, Jeffrey J. and DAESCHLER, Edward B.** (Foreword by John L. Cotter). (1994). Descriptive analyses and taphonomic observations of culturally-modified mammoths excavated at “the gravel pit,” near Clovis, New Mexico in 1936. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 145:1-28 [abstracts in English and Russian]. **Annotation:** “The vertebrate fossil collection at the Academy of Natural Sciences of Philadelphia includes the remains of Mammoth 1 and Mammoth 2 recovered in 1936 by Dr. John L. Cotter and party. These mammoths were found in association with the type Clovis Fluted projectile points at Blackwater Locality No. 1, near Clovis, in Roosevelt County, New Mexico” [E/ECM].


234 Elephant Volume 2, Number 4


5033 BcqC SCHILFARTH, Jurgen. (1997). New elephant refuge planned in Europe. Journal of the Elephant Managers Association, 8(3):4. Annotation: Elefanten-Hilfe Europa E. V. (Elephant-Aid Europe), was founded during a meeting at Munster Zoo, Germany, with goal to build a refuge for badly housed, mistreated, injured, or sick elephants [E/ECM].


1987-2000


5059 LqtC SCHWAMMER, Harold M. (1998). Training elephant keepers in Arkansas. Journal of the Elephant Managers Association, 9(2):139-146. Annotation: For five years, courses for keepers and handlers of elephants have been held in Greenbrier, Arkansas, by Heidi and Scott Riddle on a 330 acre sanctuary, Riddle’s Elephant Breeding Farm and Wildlife Sanctuary. The aim is to reach acceptable parameters in which elephants and humans can co-exist and apply common sense as to how much physical closeness to a dangerous elephant is possible [E/ECM].


African elephant” [E/ECM].


5098 LkrW SHORT, Roger V. (1992). Elephants and birth control. New Scientist, 135(1832):21-23. Annotation: Need for population control caused by range restriction in protected areas in Africa and land use conflict with humans. Feasible method could be mid-term abortion brought on by ingestion of abortive substance similar to RU486, which binds progesterone receptor in humans. Another approach could be to immunize animal with substance such as ZP3, a protein from transparent membrane known as zona pellucida that envelopes the egg of all mammals, which prevents sperm from becoming attached to the zona [ID-H/M&DR]. See Reference nos. 2963, 2995, 4131, 4777, 4786, 5527 [ECM].


5116 BapB SHOShANI, Jeheskel. (1992). Anatomy and physiology. In Elephants: majestic creatures of the wild (consult. ed. J. Shoshani), pp. 66-80. Rodale Press, Emmaus (Pennsylvania), 240 pp. Also, Simon & Schuster, London, pp. 66-81. Annotation: General anatomy, skin, teeth, muscles, trunk, reproductive organs, and musht. Photographs and diagrams augment text [ID-H/M&DR]. Errata: (a) page 23, right column, 2nd line — “Cabrera, 1929” should be “Hay, 1922”; (b) page 70, right column, under “The teeth”, 2nd paragraph, 8th line — change “This occurs 6 times...” to “This occurs 5 times...”; (c) page 233 under “Acknowledgments”, right column, first entry, there is a reference to cross section of trunk on page 75; this illustration is not in the book [JS].


5125 BcjB SHOShANI, Jeheskel. (1992). Epitome. In Elephants: majestic creatures of the wild (consult. ed. J. Shoshani), p. 230-231. Rodale Press, Emmaus (Pennsylvania), 240 pp. Also, Simon & Schuster, London. Annotation: “Should the decimation of elephants continue, it would be impossible to predict what would happen to the elephant. Perhaps it will adapt... A vision I sometimes see has haunted me: instead of an Ahmed with ears spread wide, huge tusks, and trunk raised to trumpet, a different kind of elephant may develop: a stealthy, taskless animal, which will communicate in a way that humans cannot hear, never announcing its precedence. Perhaps it will be smaller, and not require as much food, or perhaps it would move to remote areas, away from dead elephants and their dry bones, and be wary of its only natural enemy, man” [E/JLP].

Australia and Antarctica. Progressive increase in size, very specialized characters including trunk and dentition. Physical characteristics of known phyletic lines and their distribution through time [ID-H/M&DR].


5128 BcjB SHOSHANI, Jeheskel. (1993). Elephants: the super keystone species. Swara, 16(2):25-29. Annotation: Elephants are important because they are keystone species, their presence enables other species to survive. They modify their environment, disperse seeds, convert woodlands to grasslands, dig and enlarge waterholes [ID-H/M&DR].


5136 LecW SHOSHANI, Jeheskel. (1997). Little players and big players. Swara, 20(3):22-24. Annotation: According to Edward O. Wilson, ecosystems are composed of “Little Players and Big Players” with animals and plants coexisting in extremely delicate balance. The Big Players are keystone species, which modify their environment, such as ants, alligators, sea otters, rhinos, and elephants, and many animals that share this environment benefit from these changes. Conserving a habitat large enough to support elephants means conserving many other animals which share the same ecosystem [E/ECM].

5137 BpvB SHOSHANI, Jeheskel. (1997). What can make a four-ton mammal a most sensitive beast? Subtitled: “It’s a nose! It’s a hand! It’s an elephant’s trunk!” Natural History, 106(10):36-45. Annotation: Illustration by Utako Kikutani, with help of Gary H. Marchant. Trunk of an elephant contains eight muscles (on each side of the trunk, a total of 16 muscles because it is bilateral) with about 150,000 units of muscles, or fascicles [the precise estimated number for the trunk of “Iki” is 148,198 fascicles for the entire proboscis]. There are two sets of muscles: external and internal. The external set is composed of: (1) maxillo-labialis, (2) pars rimana, (3) pars supra-labialis, (4) naso-labialis, and (5) nasalis. The internal set is composed of: (6) rectus nasi, (7) transversus nasi [new name], and (8) septum nasi. Note: the photograph with the two elephants on p. 44 is upside down; see correction in Natural History, 107(2):6; cf. Reference no. 3476 [JS/ECM].


5140 *vaU SHOSHANI, Jeheskel. (1998). Understanding proboscidean evolution: a formidable task. Trends in Ecology & Evolution, 13(12):480-487. Annotation: Summary of proboscidean evolution, recent findings, including coevolution of infrasonic communication and ability to store water in the pharynx. Erratum: on page 482, Table 1, five lines from bottom of entries of taxa — authorship for Loxodontini should be Osborn, 1918, not Kalandadze and Rautian, 1992 [ECM].


Paleoindians [JS].

5146 LgcB Shoshani, Jeheskel and Kahl, M. Philip. (1998). A recap of African elephant research and conservation in historical perspective. In National Symposium on Elephant Management and Conservation (ed. Jayantha Jayewardene and Charles Santiapillai), pp. 53-74. Biodiversity & Elephant Conservation Trust, Colombo (Sri Lanka), 95 pp. Annotation: Includes annotated literature cited. Erratum: on page 55 the scientific name of the forest African elephant is designated as "Loxodonta cyclotis"; it should be written "Loxodonta cyclotis" (Matschie, 1900) after Groves et al., 1993". Explanation: In 1900 Matschie named the Forest African Elephant "Elephas cyclotis" designating it as a new species. Groves et al. (1993) provided evidence for distinctiveness of forest elephant from savanna elephant, suggested upgrading it from a subspecies (as was widely accepted in post 1900 literature) to species level. Since Matschie was first to designate it as a new species, he receives the credit in parentheses, even though the name changed [ECM/CGP].


5149 *vvU Shoshani, Jeheskel and McKenna, Malcolm C. (1998). Higher taxonomic relationships among extant mammals based on morphology, with selected comparison of results from molecular data. Molecular Phylogenetics and Evolution (Special Issue), 9(3):572-584, plus seven appendices on the website (http://www.idealibrary.com). Annotation: Morphological, molecular data evidence of affinity between Proboscidea and Sirenia; Hyracoidea is next most closely related taxon [SKB].


5156 Babv Shoshani, Jeheskel, Golenberg, Edward M., and Yang, Hong. (1998). Elephantidae phylogeny: morphological versus molecular results. Acta Theriologica, Supplement 5:89-122. Annotation: Corroborates previous results that Asian elephant (Elephas) and mammoth (Mammuthus) are more closely related to each other than either is to the African elephant (Loxodonta). Mammuthus is fastest evolving taxon, whereas Loxodonta is slowest. Examines importance of using outgroup comparisons. Erratum: on page 99, subfamily Elephantinae should include Primelephas as shown in Table 1, page 93 [JS].


5160 LwcbW Shoshani, Jeheskel, Hagos, Yohannes, and Yacob, Yohannes Ifter. (2000). Observations on elephant habitat and conservation of elephants in Eritrea. Elephant, 2(4):14-19. Annotation: Confined to a small area, about 100 by 50 km, the elephants in Eritrea are one of the northernmost populations in Africa, especially vulnerable because they appear genetically isolated and small number renders them a non-viable population. Conservation efforts are outlined. Editors' note: In Eritrea, first names, rather than second/fast names, are used for citation of authorship. Family names as commonly employed by some nationalities are not used; instead, fathers' first names are employed as second names for sons and daughters [ECM/JS].

5161 *avB Shoshani, Jeheskel, Agnew, Dalen, Watson, Gary, Marchant, Gary H., and Marsac, Eleanor C. (1997). The pharyngeal pouch: a unique receptacle in the throat of an elephant. In Proceedings of the 23rd National Conference of the American Association of Zoo Keepers, Inc., held in Detroit, Michigan, October 6-10, 1996, pages 14-25. American Association of Zoo Keepers, Inc., 162 pp. Annotation: A function of the pharyngeal pouch, supported by the hyoid apparatus, is to store water for use in times of stress. We estimate an adult African elephant's pouch holds nearly four liters (about one gallon). Belief is that water is not retrieved from the stomach because a large amount of liquid is involved, and the liquid sprayed is almost clear and does not include stomach contents. Hyoid apparatus of extinct proboscideans reveal structures similar to those of the living elephants. These structures and associated phys-
iological adaptations probably helped proboscideans/elephants to survive during periods of drought over millions of years [JS/ECM].

Shoshani, Jehekel, FISHER, Daniel C., ZAWSKIE, John M., THURLOW, Steven J., Shoshani, Sandra L., BENNINGHOFF, William S., and ZOCH, Frank H. (1989). The Shelton Mastodon Site: a multidisciplinary study of a late Pleistocene (Two Creekan) locality in southeastern Michigan. Contributions from the Museum of Paleontology. The University of Michigan, 27(14):393-436. Annotation: Floristic and faunistic of late Pleistocene and early Holocene remains at this site were carbon dated giving a range of 12,810 ± 260 (on wood) to 9,490 ± 295 (on cones of red pine); some of these dates were obtained after this paper was published. Remains of coniferous trees were stratigraphically lower and older than remains of deciduous trees. Animal remains included mollusks, insects, fishes, amphibia, reptiles, birds, and mammals [insectivores, rodents, lagomorphs, artiodactyls (especially Scott's moose, Cervalces scotti), carnivores, and proboscideans, Mammut americanum] [JS].

Shoshani, Jehekel, FISHER, Daniel C., ZAWSKIE, John M., THURLOW, Steven J., Shoshani, Sandra L., BENNINGHOFF, William S., and ZOCH, Frank H. (1989). The Shelton Mastodon Site: a multidisciplinary study of a late Pleistocene (Two Creekan) locality in southeastern Michigan. Contributions from the Museum of Paleontology. The University of Michigan, 27(14):393-436. Annotation: Floristic and faunistic of late Pleistocene and early Holocene remains at this site were carbon dated giving a range of 12,810 ± 260 (on wood) to 9,490 ± 295 (on cones of red pine); some of these dates were obtained after this paper was published. Remains of coniferous trees were stratigraphically lower and older than remains of deciduous trees. Animal remains included mollusks, insects, fishes, amphibia, reptiles, birds, and mammals [insectivores, rodents, lagomorphs, artiodactyls (especially Scott's moose, Cervalces scotti), carnivores, and proboscideans, Mammut americanum] [JS].

Shoshani, Jehekel, FISHER, Daniel C., ZAWSKIE, John M., THURLOW, Steven J., Shoshani, Sandra L., BENNINGHOFF, William S., and ZOCH, Frank H. (1989). The Shelton Mastodon Site: a multidisciplinary study of a late Pleistocene (Two Creekan) locality in southeastern Michigan. Contributions from the Museum of Paleontology. The University of Michigan, 27(14):393-436. Annotation: Floristic and faunistic of late Pleistocene and early Holocene remains at this site were carbon dated giving a range of 12,810 ± 260 (on wood) to 9,490 ± 295 (on cones of red pine); some of these dates were obtained after this paper was published. Remains of coniferous trees were stratigraphically lower and older than remains of deciduous trees. Animal remains included mollusks, insects, fishes, amphibia, reptiles, birds, and mammals [insectivores, rodents, lagomorphs, artiodactyls (especially Scott's moose, Cervalces scotti), carnivores, and proboscideans, Mammut americanum] [JS].


5188 LcjW SIMMONDS, Mark. (1998). Changing conservation aims — who will represent wildlife? Oryx, 32(2):823. Annotation: Biggest threat to wildlife and biodiversity may not be what proportion (if any) can be ‘safely’ removed, but how we view them. In particular, are animals a resource or something more?” [E/ECM].


of elephant domestication center in GaNP. Situation circa 1992; suggests that opportunity for tourists to ride an elephant within National Park area is particularly valuable in providing revenue to sustain Park [ID-H/M&DR]. See Reference nos. 1675, 3253, 3539, 3800, 3801, 3951, 5631, 5632 [ECM].


5211 LmwW SMITH, A. K. Kes [Hillman], ATALIA, M., and WATKIN, J. (1993). Pachyderms and threats increasing in Garamba National Park, Zaire. Species, 20:30-32. Annotation: A May 1993 aerial census counted 8,705 elephants in the Park and 178 in the Domaines de Chasse area. In 1976 a similar survey estimated 22,000 elephants. Heavy poaching reduced the number to 7,700 in 1983. Poaching began to be brought under control after the present project commenced in 1984 but there was a time lag in the recovery of the population and numbers actually dropped to 4,000-4,500 [ID-H/M&DR].

5212 LcuW SMITH, A. K. Kes Hillman, DE MERODE, E., NICHOLAS, A., BULS, B., and NDEY, A. (1995). Factors affecting elephant distribution at Garamba National Park and surrounding reserves, Zaire, with a focus on human-elephant conflict. Pachyderm, 19:39-48. Annotation: Preliminary results from investigations on background of human-elephant conflict in GaNP. Concentrations of elephant and fires caused loss of woody vegetation within Park; animals started to frequent adjacent areas. Mapping vegetation and animal distribution plus radio tracking and interviews with people in adjacent areas and long term staff provided significant amount of information suggesting conflict is minimal and crop raiding by elephants is rarely done except when agricultural land lies in pathway to seasonal ranges or general population movement [ID-H/M&DR].


their domestic stock. The village of Alfakoara is situated in northeastern Benin near the border with Niger. The elephants consisting of several dozen of various ages visit a depression near the village on a daily basis. Except for the dry months of January to March, the depression contains sufficient water for both the villagers and the elephants who have developed a tolerance of each other and a sharing of the water resource. The article outlines a program to deepen and develop the depression and built a viewing stand for eco tourism development [ID-H/M&DR].


5234 LkcW SPINAGE, Clive A. (1990). Botswana’s problem elephants. Pachyderm, 13:14-19. Also published in 1992 in The Rhino & Elephant Journal, 6:16-23. Annotation: Chobe/Moremi area of northern Botswana historically favored by elephants. Populations increased with little disturbance. But destruction seen to woody vegetation along Chobe River riparian strip unless elephants are reduced, excessive destruction and loss of canopy cover in region are inevitable. In the eastern sector, two populations occupy areas near the Zimbabwe border. One group marauds agricultural crops in a relatively densely populated area north of Selebi Phikwe, the other group in the Tuli Block increasingly conflicts with surrounding farmland. Consequences from uncontrolled growth in elephants to habitat could be catastrophic [ID-H/M&DR].


5251 LwjW STALMANS, Marc and ANDERSON, Jeremy L. (1992). The forest elephants of Togo. African Wildlife, 46(2):71-75. Annotation: Forest elephants in Fosos aux lions reserve are outside their range. Located in a depression between two sandstone escarpments, the area’s climax vegetation is lusher than expected in a generally dry savanna; the reserve itself has a swamp. About 100 elephants live between Fosos aux lions and the Ghanaian border. Heavy poaching in Ghana led to an influx that came via a corridor created by the swamp along the Koulougana River [ID-H/M&DR].


5253 LeeW STANLEY PRICE, Mark R. (1997). Valuing elephants: the voice for conservation. Swara, 20(3):29-30. Annotation: From a utilization perspective, an elephant is worth the sum of its ivory, hide, meat, feet and tail hairs. They also have immense value as ecological agents, a
value just as real though harder to articulate or measure [E/ECM].


5258 BqtC STEELE, Bucky. (1998). Everything you always wanted to know about elephants, but were afraid to ask. Applewhite Publishing, Lake of the Fine [Texas (self-published)], 357 pp. Annotation: 80 pages of color and black and white scanned photographs. Contains humor, history, and countless stories about man and animal that has become backbone of two industries: zoo and circus. Includes typographical errors and some information that could be misinterpreted [E/ECM].


5260 *ahU STEENSMA, Karel. (1990). Onderzoek in de Siwaliks van Noord-Pakistan. Cranium, 7(1):9-19. Annotation: American/Dutch/Pakistan team is carrying out paleontological fieldwork in Siwaliks, in an area called Mangla-Samwal Anticline. Lower boundary of Elephas planifrons Interval-Zone, which was set by Barry et al. (1982) at 2.9 my BP is tentatively dated around 3.4 my; E. planifrons Interval-Zone can probably be subdivided on basis of entrance of E. hysudricus, cervids and probably Equus at around 2.7 my BP, in E. planifrons Interval-Zone and E. hysudricus Interval-Zone [E/ECM].


5263 LjbW STEVENS, A. J. (1993). In search of the desert elephant. Getaway. 90-93. Annotation: Adaptations made by the remnant elephant population living in northwest Namibia. Traveling at night up to 60 kilometers to secret water holes and fresh vegetation, low birth rate and taking only a portion of vegetation from each plant to limit plant damage [ID-H/M&DR].


5278 LmwW STROMEYER, Karl A. K. and EKOO, Atanga. (1992). The distribution and number of forest dwelling elephants in extreme southeastern Cameroon. Pachyderm, 15:9-14. Annotation: Forests of southeastern Cameroon may contain some of largest and least distributed populations of rain forest mammals in Central Africa, but there is no effective protected status and wildlife is increasingly threatened by poorly conceived logging practices and excessive hunting. During ground transect studies in three areas within region, intended to pro-
First line of text: pose boundaries of a series of regional reserves and to provide data on number and distribution of elephants, a density of 4.64 elephants per sq. km was noted in one, Lake Lokeke area. Recommendations include establishment of a minimum of two protected areas in Molondou Subdivision; one encompassing general area of Lake Lobeke and Mongokele study sites and other on proposed Boumba Bek Forest Reserve [ID-H/M&DR].


5285 LjwW STUART-HILL, G. C. (1992). Effects of elephants and goats on the Kaffrarian succulent thicket of the eastern Cape, South Africa. Journal of Applied Ecology, 29(3):699-710. Annotation: Both elephants and goats reduced canopy cover and increased shrub density in the Kaffrarian succulent thicket, a dense, semi-succulent thorny vegetation which is rapidly being eliminated under current pastoral systems. The effect of defoliation by elephants and goats was compared. Goats reduced the number of dominant shrub species and drastically reduced the percentage of frequency of the dominant tree succulent, Portulacaria afra. Replacing elephants with goats resulted in a fundamental change in the shrub community to one dominated by small, unpalatable shrubs, with a few scattered umbrella-shaped trees. Removing elephants and not replacing them with goats resulted in the sites becoming more dissimilar, possibly because the vegetation reacted to the unique climatic and edaphic potential of each site. It is argued that the Kaffrarian succulent thicket is adapted to elephant utilization, but not to the utilization by small domestic ungulates stocked at equivalent biomass [ID-H/M&DR].


5291 LcwW STYLES, Christopher. (1995). The elephant and the worm. BBC Wildlife, 13(3):22-24. Annotation: Research showed that it was not elephant, but eland causing browsing pattern to mopane woodlands in Tuli Block area, Botswana. Findings suggest browsing was beneficial to ecology when mopane worm harvest, one economic factor in area, is considered [ID-H/M&DR].


drinking, movements, habitat alteration, distribution [MPK].


5304 EjmW Sukumar, Raman. (1993). Minimum viable populations for elephant conservation. Gajah, 11:48-52. Annotation: “A total population of 100-200 elephants...would not only have a high (>99%) probability of survival for the next 100 years..., but also be safe in the short term from genetic erosion” [E/JLP].


5307 EewW Sukumar, Raman. (1995). Elephant raiders and rogues. Natural History, 104(7):52-61. Annotation: “The more Asian elephants raid crop fields, the more the farmers’ traditional tolerance is put to the test... When new settlements arise in river valleys that elephants have used for millennia, conflict is inevitable” [E/ECM].


between man's role in animals' demise in Pleistocene and "second wave of extinctions" today [E/JLP].


5332 LcwW Swanepoel, C. M. (1993). Baobab damage in Mana Pools National Park, Zimbabwe. African Journal of Ecology, 31(3):220-225. Annotation: Between 1984 and 1988 in MPNP, 124 babobs near the Zambesi River were monitored for elephant damage at monthly intervals. Overall mortality was 29.0%. Damage and mortality rate varied annually, possibly related to annual rainfall and elephant densities. No indication mortality was higher in any particular size group of babob. Damage restricted to dry season, escalating as season progressed. Though many smaller trees were killed, there was no indication that elephants concentrated on any particular size group. Young trees had the ability to coppice after being felled and many small trees were thought to have regrown after felling some time prior to the study [ID-H/M.&DR].


5336 LiCw Swanson, Timothy M. and Pearce, D. W. (1989). The regulation of the international ivory trade. IUCN, Gland, 22 pp. Annotation: Zimbabwe proposal to seventh CITIES meeting providing for creation of Southern African Centre for Ivory Marketing (SACIM). Framework for Ivory Exchange is positive but amendments required to work, it must function as a corporate entity, not just a construct of purely international law [ID-H/M&DR].

5337 BejW Swift, J. H. and Duffy, K. J. (1987). The stability of a predator-prey model applied to the destruction of trees by elephants. South African Journal of Science, 83(3):156-158. Annotation: A simplified version of the Caughley model for an elephant-tree ecology with special reference to existence of stable limit cycles. Such cycles will occur only in a very narrow range of parameters, but are theoretically possible. Conclusion reached is that in general limit cycles will not occur and if they did, the period would be so large that it is not possible to utilize them in practice [ID-H/M&DR].


Tangley, Laura. (1997). In search of Africa’s forgotten forest elephant. Science, 275:1417-1419. Annotation: Most taxonomists have long thought of the forest elephant as a separate subspecies from the savannah elephant. New analyses of mitochondrial DNA suggest that the two may be different species [E/ECM].


Tassy, Pascal. (1987). A hypothesis on the homology of proboscidean tusks based on paleontological data. American Museum Novitates, 2895:1-18. Annotation: Late Miocene elephant species Amebelodon floridanus and comparisons with Moeritherium and other elephantoid taxa led to conclusion that tusks of Moeritherium and of Elephantoidea are not homologous. See, however, discussion by Luckett (Reference no. 4240, pp. 30-31) who praises Tassy for this work, but disagrees with him on certain aspects [ECM, abstract] [in English with abstracts in English and French].


Tassy, Pascal. (1994). Gaps, parsimony, and early Miocene elephantoids (Mammalia), with a reevaluation of Gomphotherium annectens (Matsumoto, 1925). Zoological Journal of the Linnean Society, 112:101-117. Annotation: “From parsimony analyses it seems very likely that early Miocene Old World so-called gomphotheres (Gomphotherium ‘annectens group’) are not closely related to other gomphotheres” [ECM; p. 101].


Tassy, Pascal. (1996). Who is who among the Proboscidea? In The Proboscidea: evolution and paleoecology of elephants and their rela-

5371 Baj


5372 *vwU


5373 *awU


5374 +vaB


5375 +vhB


5376 *vwU


5377 *awU


5378 *awU


5379 +jbV

Tattersall, I. (1993). The human odyssey: four million years of human evolution. Prentice Hall General Reference, New York, 191 pp. **Annotation:** Page 158 has diorama with hut in Ukraine, built of 17 tons of bones, representing remains of 95 mammoths. Pages 174-5 shows mural by Charles Knight of AMNH: a group of Cro-Magnons decorating a Paleolithic cave; on wall appears to be three woolly mammoths, a fourth one is in process of completion [JS].

5380 LciW


5381 EroB


5382 LcwW


5383 Bdpc


5384 BdpC


5385 EdqC


5386 EdqC


5387 BmqC


5388 LmwW

Taylor, Russell D. (1987). Abundance and distribution of elephants in Matusadona National Park, Zimbabwe. *Transactions of the Zimbabwe Science Association*, 63(6):58-66. **Annotation:** Numbers and seasonal distribution of elephants in MnNP were determined by aerial survey between 1967 and 1977. Corrected minimum total counts provided estimates of elephants varying from 600 in the wet season to 1,300 in the dry season, equivalent to densities of 0.4 and 1.0 elephants sq. km. The mean size of elephant groups, 6.0, was low suggesting a stress free population [ID-H/M&DR].

5389 LbcW

Taylor, Russell D. (1987). *Les elephants de Madarounfa: an investigation of an incursion of elephants into southern Niger* [Consultant’s Report]. World Wildlife Foundation, Gland, viii, 81 pp. **Annotation:** Details incursion of elephants into Madarounfa area of southern Niger with possible solutions. Up to 700 elephants migrated in search of water and food as the result of poaching. Elephants feed in bushland by day and seek water and damage crops at night. Though there has been tolerance between people and elephants during dry season, there is concern about crop damage during wet season. Short term solution: public awareness, establishment of water supplies in un gazetted Baba Nrafi forest. Long term solutions: land use plan comprising cultivated settlement, livestock and elephant range, community participation in the sustainable use of pasturage, water, forestry and wildlife with benefit accruing directly to the people involved [ID-H/M&DR].

5390 LcwW


5391 LcuW

conflict between wildlife and people for damage inflicted on crops and property, plus injury or death to humans. CAMPFIRE program aimed at reducing conflict between elephants and humans and increasing tolerance for these animals [ID-H/M&DR].


5398 LwcW TCHAMBA, Martin N. (1993). Number and migration patterns of savanna elephants (Loxodonta africana africana) in northern Cameroon. Pachyderm, 16:66-71. Annotation: AIESG meeting, Victoria Falls, Zimbabwe, Nov. 17-22, 1993. Sudanian region of Cameroon covers about 198,000 sq. km and comprises two major domains; the Sahelian and the Sudanian. The Waza-Logone floodplain lies in the Sahelian domain and has one of the largest elephant populations of the Sudano-Sahelian region of west and central Africa. They migrate between WNP and KalNP depending on weather. Other elephant populations move seasonally correlating with water and food, but on a limited scale. Migrations in northern Cameroon concern of many. Elephants are killed, farms damaged and crops lost [ID-H/M&DR].

5399 LcwW TCHAMBA, Martin N. (1995). The impact of elephant browsing on the vegetation in Waza National Park, Cameroon. African Journal of Ecology, 33(3):184-193. Annotation: Acacia seyal zone and woodland zone of WNP sampled by line transects to assess damage to trees by elephants. In Acacia seyal zone, 1,503 trees were examined of which 65% were undamaged, 15% less than three quarters browsed and 20% seriously damaged. In woodland zone, 1,431 trees were examined of which 55% were undamaged, 36% were less than three quarters browsed and 9% seriously damaged. In Acacia seyal seriously damaged trees were from mature class while in woodland the majority of damaged trees (66% and 74%, receptively) were of mature class. Woodland zone of Waza under far less browsing pressure than KalNP, a dry season habitat for some Waza elephants. In both parks Acacia seyal, Pilostigma reticulatum, Combretum spp. and Balanites aegyptiaca were preferred foods. Monitoring of vegetation in WNP and KalNP recommended [ID-H/M&DR].

5400 LcwW TCHAMBA, Martin N. (1995). The problem elephants of Kacle: a challenge for elephant conservation in northern Cameroon. Pachyderm, 19:25-32. Annotation: Human-elephant conflict in the Kacle where a small resident population was recently augmented by animals entering area because of disruptions in their home territory. Need for research into the background of the elephants, strategies for mitigating human-elephant conflict and application of long term management programs [ID-H/M&DR].


5403 LbcW TCHAMBA, Martin N. (1998). Habitudes migratoires des elephants et interactions homme-elephant dans la region de Waza-Logone (nord Cameroun). Pachyderm, 25:53-66 [in French with English and French abstracts]. Annotation: In 1991 the population of elephants was estimated at 1,100 and may have been more than 1,400. Three subpopulations have been identified in WNP [E/ECM].

5404 LcmW TCHAMBA, Martin N. and ELKAN, P. (1995). States and trends of some large mammals and ostriches in Waza National Park, Cameroon. African Journal of Ecology, 33(4):366-376. Annotation: Results of transect aerial surveys estimated a total population of 1,071 elephant in WNP. This 1991 estimate was substantially higher than previous estimates of 465 and 478 by Esser and Van Lavieren in 1977 and 250 by Flizot in 1962. Elephants were distributed throughout the Acacia seyal area in large herds as well as small groups with the largest group being 323 animals. There is some migration between KalNP and WNP. Elephants showed a significant increase of 9.3% since 1977 and it is recommended that data be collected on crop raiding and measures be taken to limit human/elephant conflicts [ID-H/M&DR].

5405 LcmW TCHAMBA, Martin N. and MAHAMAT, H. (1992). Effects of elephant browsing on the vegetation in Kalamaloue National Park, Cameroon. Nature et Faune, 8(2):8-14. Annotation: Also published in Mammalia, 56(4):533-540. KalNP was sampled by means of line transects to assess damage to trees caused by elephants in dry season. 2,602 trees examined of which 53% were damaged (less than three-quarters browsed) and 44% were dead (three-quarters browsed). Most mature trees were dead (77%). Of trees browsed, majority (57%) came from recruitment class. Five most preferred, heavily utilized tree species were Combretum aculeatum, Acacia seyal, Balanites
Aegyptiaca, Piliostigma reticulatum and Bauhinia rufescens. Elephant damage to vegetation is serious enough to warrant management intervention [ID-H/M&DR].

5406 LamW Tchamb, Martin N. and Seme, Prosper M. (1993). Diet and feeding behaviour of the forest elephant in the Santchou Reserve, Cameroon. African Journal of Ecology, 31(2):165-171. Annotation: Diet and feeding behavior of forest elephants in western Cameroon. Diet consists primarily of grass. 22 species of fruit were consumed, 7 species forming a significant component. Greatest variety of fruit was available in dry season. Crop seeds often present in dung indicating elephant incursions were regular. 17 species of trees and shrubs browsed. Elephants fed mainly by grazing or stripping off fruits. Debarking trees, breaking main stems and uprooting or pushing over trees were minor feeding activities [ID-H/M&DR].


5408 LcwW Tchamb, Martin N., Bauer, H., and De Longh, H. H. (1995). Application of VHF-radio and satellite telemetry techniques on elephants in northern Cameroon. African Journal of Ecology, 33(4):335-346. Annotation: Two young adult cows fitted with VHF-radio and satellite transmitters were tracked for ten and twenty-one months, respectively, in WNP. Home range and seasonal migratory patterns were assessed, as were accuracy of satellite and radio tracking [ID-H/M&DR].


5415 *evU Tchernov, Eitan, Kolksa Horwitz, Liora, Ronen, Avraham, and Lister, Adrian. (1994). The faunal remains from Evron Quarry in relation to other lower Paleolithic hominid sites in the Southern Levant. Quaternary Research, 42(3):328-339. Annotation: "The mammalian faunule from Evron comprises a biogeographical mixture, as a result of baltic exchanges with Africa, the Oriental region, and the Palaeartic. This exchange may have been associated with a post-Ubeidiya hominid dispersal, either from Africa or south Asia via the Levantine 'corridor.'" Proboscidean remains include Elephas sp., possibly E. hyusricus-E. maximus, southern Asiatic line; Stegodon sp., most probably Asiatic origin, p. 332 [E/ECM, abstract].


5420 LcqC Telecky, Teresa M. and Farinao, Richard H. (1999). Animal advocates come to aid of baby elephants. All Animals [The Humane Society of the United States], Spring:3. Annotation: In summer 1998, 30 calves, 2 to 7 years old were violently, but legally, taken from their families in a private reserve called the Tuli Block in Botswana and sold to foreign buyers. Update of the calves' fate. See Reference nos. 3868, 3872, 3873, 3874, 4497, 4905 [ECM].


5424 LcmW Tembo, A. (1995). A survey of large mammals in Sioma-Ngwezi National Park, Zambia. African Journal of Ecology, 33(2):173-174. Annotation: A December 1991 aerial survey was intended to establish baseline populations for the Park's large mammals including elephant. The importance of the Park is based on the large elephant population which is certainly a contiguous population which crosses into Namibia and Angola. The elephant population estimate was 1,187 giving a density of .22 for the Park as a whole. The carcass-to-live ratio calculated for this population was 14% [ID-H/M&DR].


5428 EtkW | TENTEN, James Emerson. (1996). The wild elephant and the method of capturing and taming it in Ceylon. White Orchid Press, Chutchuk (Thailand), 198 pp. Reprint of 1867 book published by Longmans, Green, and Co., London. Annotation: Full of outrageous misunderstandings, but also rich insights. Author understood that the leader of a herd was a wise old cow, not ‘the harem bull’ assumed by other authors. He understood elephant nature and obviously felt great affection and sympathy for them at a time when they were first being systematically exterminated on the Isle of Serendib [E/ECM].

5429 LcuW | TENNIS, Michael. (1998). Knoxville turns the BIG FIVE-O: a Tennessee zoo marks a milestone. Wildlife Conservation, 101(5):66-67. Annotation: “Mamie” the elephant’s “paintings” sell for $25.00 apiece, and she has back orders for over 40 paintings. “Old Diamond” was rallying point for community support when the zoo began. He sired first African elephant born in captivity in the Western Hemisphere in 1978. Today, the zoo has five elephants. It is known for a number of cooperative breeding efforts, including red pandas, white rhinos, bog turtles and African lions [E/ECM].


5435 LibW | THE RENEWABLE RESOURCES ASSESSMENT GROUP. (1989). The impact of the ivory trade on the African elephant population. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 5.3. The Ivory Trade Review Group, Oxford. Annotation: Uses population models and data on ivory trade in the last decade to estimate proportion of elephant population killed annually to supply the trade to quantify the effect this has had on population size and structure and to calculate a hunting strategy for producing the maximum sustainable ivory yield [ID-H/M&DR].


5439 *huU | THOMS, Alston V., KUEHN, David D., and MANDEL, Rolfe D. (1997). Mammoth remains discovered at 41BX1239. CRM News & Views, August 1997:13-16. Annotation: A backhoe trench excavated to assess potential for buried archeological deposits near San Antonio, Texas, exposed a dense concentration of in situ mammoth bones. Among the bones were two pieces with surface modifications that may have resulted from butchering [E/ECM].

5440 LciW | THOMSEN, Jorgen B. (1988). Recent U. S. imports of certain products from the African elephant. Pachyderm, 10:1-5, 21. Annotation: In 1978 the African elephant was listed as threatened under the U.S. Endangered Species Act. Between 1977 and 1983, bills were introduced in the U.S. Congress prohibiting importation of elephant products. However, some authorities think there are some large populations, that if properly managed, could sustain commercial exploitation. Sources of information, volume and pattern of U.S. import of elephant products, reasons for increase or decrease in imports regarding amounts and countries that imported and exported raw and worked ivory and elephant skins between 1982 and 1987. US trade in elephant products is significant with annual declared import value of $29.4 million between 1984-1986 and estimated retail value of at least $100 million. Worked ivory constituted bulk of imports but in early 1980s, US was largest importer of elephant skins obtained almost exclusively from culling programs in southern African countries [ID-H/M&DR].


5443 *vwU | THOMPSON, B. (1993). Where have all the mammoths gone? Patina (Utah), June, in parts:1:21-1 and 1-23.


5445 LiuW | THORNTON, Allan. (1989). The ivory trail. Environmental Investigation Agency, London. Annotation: copy of EIA text reproduced by the East African Wild Life Society, which added more data from various sources. Additional photos extend copy to 6 pages. Reviews CITES debate on elephant conservation and ivory trade, describes poaching episode, route by which ivory obtained would get to carving factory, outlines how investigative team got in to film work in factory. Reviews how findings aided Tanzanian Government officials to request listing of elephant in Appendix 1 of CITES, notes there is still much to be done to conserve elephants on long time basis [ID-H/M&DR].
January 2000

Elephant/Proboscidea Bibliography: 1987-2000

5447 LkcW

5448 LeiW

5449 LeiW

5450 LiuW

5451 LiuW
Thornton, Allan and Reeves, Ros. (1992). The spoils of war. BBC Wildlife, 10(2):24-25, 28. Annotation: Basis for placing elephants in Appendix I of CITES in 1989; what is happening in southern Africa now. Military presence in Mozambique and Angola of Zimbabwean and South African troops, respectively, provides for significant illegal ivory. Downgrading elephant from Appendix I would unleash extensive slaughter and let traders could get rid of illegal ivory [ID-H/M&DR].

5452 LmwW

5453 LcwW

5454 EbkW

5455 LswW
Thouless, Chris R. (1994). Conflict between humans and elephants on private land in northern Kenya. Oryx, 28(2):119-127. Annotation: About 3,000 elephants live in the Laikipia/Samburu region of northern Kenya - largest remaining population outside country's formal protected areas. They occasionally kill or injure people, damage crops of small-scale farmers, drive cattle away from water sources and cause other problems for humans. A number of elephants have been shot for control purposes in recent years, others have died from poisoning, snared or spearing. The author examines the conflict and makes suggestions for resolving some of the problems [ID-H/M&DR].

5456 LbwW
Thouless, Chris R. (1995). Long distance movements of elephants in northern Kenya. African Journal of Ecology, 33(4):324-334. Annotation: Movements of elephants of Samburu and Laikipia Districts in northern Kenya studied between 1990 and 1992 included radio-collaring and tracking twenty females. Total population of about 3,000 animals is largest in Kenya living primarily outside protected areas. Radio tracking indicated about 800 animals moved distance of up to 1,400 km north from cattle ranches in Laikipia to drier pastoral areas in Samburu twice a year in rainy season. This seems to be regular migration between small dry season ranges and larger wet season ranges. Until the 1970s, majority of elephants in this area were resident in the Samburu range area and the long distance movements may be result of change in dominant vegetation on Laikipia from grassland to bushland and increase in number of permanent water sources combined with upsurge in poaching in Samburu. Competition for water with growing human population in Samburu in contrast to abundant permanent water sources and little human disturbance in Laikipia range lands may be part of reason for continued movements [ID-H/M&DR].

5457 LbwW

5458 LkeW

5459 LmwW

5460 LmwW

5461 LmcW
Thouless, Chris R. (1998). Presentation: Proposal for incorporation of grid-based data into the African Elephant Database. Pachyderm, 25:93-94. Annotation: Data on estimates of elephant numbers within the AED are well documented however, the quality of information on range is much poorer and inadequately documented. It is proposed to include grid-based distributional information within the database, based on a quarter degree geographic grid system [E/ECM].

5462 LbwW

5463 LmwW
into conflict with people. The Laikipia Elephant Project was established to find ways to reduce this conflict. An essential step towards their conservation was to gain information on their movements. Both satellite and conventional VHF collars have been used. Thus far satellite tracking, generally used in higher latitudes, has not proved satisfactory. The paper describes technical aspects of the conventional VHF tracking program and presents some initial results [ID-H/M&DR].

5464 LckW ThoUeSS, Chris R. and SAKWA, Jim S. (1995). Elephant fences in northern Kenya. In A week with elephants (ed. J. C. Daniel and H. S. Dayte), pp. 523-528. Bombay Natural History Society, Bombay. Oxford University Press, 535 pp. Annotation: Electric fences and other barriers to prevent movement of elephants onto arable land are important conservation tools as elephant populations become isolated by increased human populations in Africa. There are about 2,500 elephants in Laikipia District, which consists of ranches and small scale arable farms. More settlements and changes in elephant range correlates with increased crop raiding. Many types of barriers have been built in last 20 years. There was little relationship between effectiveness of fences and factors of design such as high voltage. Previous experience of elephants with electric fences in an area, and the consistency of control measures, were more important than design criteria [ID-H/M&DR].

5465 LckW ThoUeSS, Chris R. and SAKWA, Jim. (1995). Shocking elephants: fences and crop raiders in Laikipia District, Kenya. Biological Conservation, 72:99-107. Annotation: As elephant populations become increasingly isolated by human population and agriculture, electric fences and other barriers become important conservation tools. Experiences in Laikipia area show type of fence does not deter elephants as much as previous experience with fences and backup management such as shooting of leading fence-breakers. Conservation efforts should concentrate on improved active management rather than barrier design [ID-H/M&DR].

5466 LnwW ThoUeSS, Chris R., HOARE, Richard E., and MULAMA, Martin S. (1992). Satellite tracking of elephants in Laikipia District, Kenya. Pachyderm, 15:28-33. Annotation: Though satellite tracking is successful for other species, it is hard to design a suitable satellite collar for most studies of movement have been done using conventional radio transmitters. This study, on Ol Ari Nyari Ranch in Laikipia District, tried to develop satellite transmitters for elephants and test their effectiveness in the field. Methods, value and cost-effectiveness of results in comparison with those from conventional radio tracking [ID-H/M&DR].


5469 LnwW Teeszen, L. L., Bouton, T. W., Ottichilo, Wilbur K., Nelson, D. E., and Brandt, D. H. (1989). An assessment of long-term food habits of Tsavo elephants based on stable carbon and nitrogen isotope ratios of bone collagen. African Journal of Ecology, 27(3):219-226. Annotation: Stable carbon and nitrogen isotope ratio of bone collagen from elephants that died in TNP between 1975 and 1980 was measured in an attempt to establish possible changes in past diets. Individuals ranged from the age of 1 to 50 at the time of death. Values for carbon were independent of age at the time of death which suggests that these elephants assimilated similar proportion of C3 (tree and shrub) and C4 (grass) vegetation during the sixty year period covered by the specimens. Fecal analyses showed higher interindividual variation in the proportion of foods eaten, but the mean intake was similar to that estimated from the bone collagen, about 75% trees and shrubs. These data suggest that, in TNP, elephants have maintained similar proportions of types of vegetation in their diet in spite of the fact that the woodlands appear to have been converted to grasslands over the past fifty years [ID-H/M&DR]. See Reference no. 5541 [MPK].


5486 LewW TREVOR, Simon. (1992). Elephant as architect. BBC Wildlife, 10(9):50-54. Annotation: Ecological change brought about by what was initially considered devastating losses in tree cover from excess elephant browsing. Elephant as instrument in habitat modification, ecological cycles and balance in TNP [ID-H/M&DR].


5488 LuiW ’t SAS-ROLFES, Michael. (1997). Elephants, rhinos and the economics of the illegal trade. Pachyderm, 24:23-29. Annotation: “Wildlife trade problems will only be solved by controlling supply, i.e., by adequate field protection” (p. 29) [E/SLS].

5489 *evU TSCHERRHART, Don. (1987). Hiphone connected to the... The Detroit News, December 21:3B. Annotation: “Like Humpty Dumpty, Iki the elephant is in pieces — and a Wayne State University professor (Jeheskel Shoshani) and his students are trying to put it back together again.” “Iki” is on display at Science and Engineering Library, WSU, Detroit [E/ECM].

5490 *avU TSOKALA, Evangelia and LISTER, Adrian. (1998). Remains of straight-tusked elephant, Elephas (Palaeoloxodon) antiquus Falc. & Caut. (1847) ESR-dated to oxygen isotope Stage 6 from Grevena (W. Macedonia, Greece). Bolletino della Societa Paleontologica Italiana, 37(1):117-139 [in English, with abstract in English and Italian]. Annotation: Partial skeletal of straight-tusked elephant, which died at about 40 years of age. Additional remains: fragments of at least one other individual of same genus and species. Three samples of tooth enamel were ESR-dated, giving age in range 160-170 thousand years BP, indicating Greece as a refugium of temperate, woodland-adapted large mammal species at a time when they were largely excluded from northern and central Europe [E/ECM, abstract].

5491 LbzC TUCKER, Neely. (1997). Finding love among strangers. The Detroit Free Press, August 9, 1997, pp. 1A, 6A Annotation: "Nzo", an elephant, was brought to the Imire Game Reserve when she was less than two years old, where she lived with a herd of Cape buffalo. Attempt was made to breed Nzo with a bull elephant but she killed him, which is unusual, because elephants don’t usually kill one another. She has killed 14 males buffaloes who have tried to take control of the herd. She gets along with female buffaloes [ECM]. This behavior of one species adapting to live with another species and not recognizing its own is possibly a result of imprinting at an early age [JS].

5492 BiwW TUDGE, Colin. (1994). Asia's elephants: no place to hide. New Scientist, 141(1908):34-37. Annotation: African elephants are being killed for their ivory, but Asians are being threatened just as surely by subtler forces [E/ECM].


5500 LmbW Turkalo, Andrea and Fay, J. Michael. (1995). Studying forest elephants by direct observation: preliminary results from the Dzanga Clearing, Central African Republic. Pachyderm, 20:45-54. Annotation: Daylight observations in a bai or forest clearing with a wet sandy soil substratum from which elephants obtain water by creating waterholes have provided identification of individuals as well as analysis of group structure and behavioral aspects of forest elephants. Elephants which are observed from a seven meter high platform at the edge of the clearing have been present in over 99% of the 1,800 observation hours. The high calcium and other contents of the water may be partially responsible for the high number of animals visiting the clearing, but the clearing itself provides a location for social activity that is not feasible in the forest itself. The number of males and females observed is very similar and large tusked old males make up 7% of the population, however, the presence of males is significantly higher during the wet season. Evidence suggests that the migratory population in the Dzanga-Sangha-Nouabalé Ndoki complex is comprised of males. The low birthrate and the equity between sexes suggest a stable, non-poached population; cf. Reference no. 3042 [ID-H/M&DR].


understanding anthrax in the Etosha National park. Madoqua. 16(2):93-104.

5504 *evU TURNER, Elaine. (1991). Pleistocene stratigraphy and vertebrate faunas from the Neuwied Basin region of western Germany. Cranium, 8(1):21-34. **Annotation:** Pleistocene vertebrate faunas have been found in the Neuwied Basin area of western Germany since end of 19th century. Results of new research into stratigraphy and biostratigraphy of the sites [E/ECM, summary].


5517 *evU UKRAINTSEVA, V. V. (1993). Vegetation cover and environment of the mammoth epoch in Siberia. Mammoth Site, Hot Springs, South Dakota, 309 pp. **Annotation:** "Looking at paleoecology and paleoenvironment from the gut content and surrounding sediments from animals found in the Siberian permafrost" [E/JS].


5520 EjqC ULRICH, Ward G. (1995). Elephants need homes and jobs. BBC Wildlife, 13(6):61. **Annotation:** "Thailand: as another domesticated animal goes berserk and is killed, attention is called to problems from slums to fragmented forests" [E/ECM].


5554 LjeW VANLLEEUWE, Hilde, GAUTIER-HION, Annie, and CAJAN, Simona. (1997). Forest clearings and the conservation of elephants (Loxodonta africana cyclotis) in north-east Congo Republic. *Pachyderm*, 24:46-52. **Annotation:** "In Congo, with its impoverished economic and fractured political conditions, organised illegal hunting for ivory would be easy and the benefits potentially large. The future of elephant populations could be dangerously compromised quite rapidly. Regionally adapted protection measures are needed for forest areas such as northeastern Congo" [E/ECM].


5570 LiuW VIGNE, Lucy and MARTIN, Esmond Bradley. (1993). Ethiopia's active trade in ivory. *Swara*, 16(6):28-29. **Annotation:** Active ivory carving industry and tourism trade to target; effects on elephant population; implications for poaching in neighboring states [ID-H/M&DR].

5571 LucW VIGNE, Lucy and MARTIN, Esmond Bradley. (1998). Sand rivers. *Swara*, 20(6)/21(1):8-11. **Annotation:** In 1980s SGR witnessed possibly the worst slaughter of wildlife in Africa. In 1981 there were about eighty-five thousand elephants and two thousand black rhinos in the reserve. By the late 1980s, there were about twenty-five thousand and less than five hundred, respectively. Now, wildlife numbers are rising and tourism is on increase [E/ECM].

5572 LwcW VIGNE, R. (1993). Uganda: alive and well. *Swara*, 16(4):18-20. **Annotation:** Reports on seeing 400 elephants in MFNP, June 1992 in which ratio of young adults is high. Additional 200 reported in KVNP. Since anti-poaching units are not well equipped or trained, these will be wiped out by poachers if ivory ban is lifted or ivory prices increase [ID-H/M&DR].


group between. In 1983, 357 individual elephants identified: 70 in western, 207 in eastern, 80 transitional. Records indicate elephants present in northern Namib desert long before advent of western man. Present data show man had little influence on occupation of elephants in western area before 1880. Elephant populations stable following intensified law enforcement, but small population sizes are vulnerable [ID-H/M&DR].


5578 LewW Viljoen, Philip J. (1989). Habitat selection and preferred food plants of a desert-dwelling elephant population in the northern Namib Desert, South-West-Africa/Namibia. African Journal of Ecology, 27(3):227-240. Annotation: Habitat selection and woody food plant preferences of desert-dwelling elephant populations in the northern Namib Desert. Suitability of river course habitat as the best upon which the elephants can depend for long-term survival is established. Preferences for other habitats, apart from mountains and rocky plains, and least the gravel plains, for short-term basis is observed. Preferences for *Combretum imberbe* and *Combretum imbibe* for forage bulk is discussed [ID-H/M&DR].

5579 LwjW Viljoen, Philip J. (1989). Spatial distribution and movements of elephants (*Loxodonta africana*) in the northern Namib Desert region of the Kaokoveld, South West Africa/Namibia. Journal of Zoology, 219(1):1-19. Annotation: Elephants in northern Namib Desert can move up to 70 km (mean = 25.7 km) from the nearest water point and have drinking intervals of between 19 and 96 hours [MPK]. Home ranges, space use patterns, seasonal distribution, long distances and water related movements of elephants in northern Namib Desert region of Kaokoveld are discussed. Movements of desert elephants, including wandering up to 195 km were confined to Namib Desert, no evidence could be found of any movements including migrations to or from ENP. Home ranges varied from 1,973 to 2,944 sq. km. There was a marked fidelity to individual home range. Seasonal distribution and space use patterns within home ranges coincided with season climatic change and corresponding food and water availability. Ability to go up to 4 days without drinking water enabled the animals to utilize food resources up to 70 km from water holes. Spatial distribution and movement patterns indicate a natural population segregation from other elephant populations in Kaokoveld, clearly demarcating the desert dwelling elephants as a distinct population [ID-H/M&DR].


5583 LwjW Viljoen, Philip J. and Botima, J. Du P. (1990). Daily movements of desert dwelling elephants in the northern Namib Desert. South African Journal of Wildlife Research, 20(2):69-72. Annotation: Movements of desert dwelling elephants living in extremely arid northern Namib Desert in search of food and water. Mean distance in 12 hour period in 1981-2 was 12.9 km, range 4 to 38 kilometers. Distances shortest in wet season, medium in cold dry season, highest in hot dry season. Mean distance traveled in 24 hours was 27.5 kilometers further than any other elephants studied thus far and key to survival in such harsh climate [ID-H/M&DR].

5584 LcwW Viljoen, Philip J. and Botima, J. Du P. (1990). The influence of desert-dwelling elephants on vegetation in the northern Namib Desert, South West Africa/Namibia. Journal of Arid Environments, 18(1):85-96. Annotation: The approximately 70 elephants in the northern Namib desert appear to have no detrimental effect on the vegetation. From monitoring study using aerial photography, it is concluded that present population is well below carrying capacity [E/ECM].


Annotation: Relationship of Taita ethnic group occupying hills in TNP area and plains dwelling Waata group with elephants. Though hunting approach to Taita elephants was quite different with Taita rarely hunting and Waata actively hunting, both groups respected the elephant which played a role in their mythology as well as their daily lives [ID-H/M&DR].


Annotation: Work being done on isotopic composition of carbon, nitrogen, lead and strontium in bone or ivory by which geographic origin of populations of elephant from which ivory originated can be ascertainment. Isotopic signatures of bone and ivory from animals from KNP, Keysna, AENP and northern Namibia indicated clear definitions for origin of sample material [ID-H/M&DR]. See Reference no. 5543 [MPK].
between different elephant populations in southern Africa. The 15N enrichment between the plant food and collagen of these animals is about 3% and appears to be independent of the aridity of the habitat [ID-H/M&DR].


Wathaka, John M. (1997). Management of elephant populations in Kenya - what have we learnt so far? *Pachyderm*, 24:33-36. *Annotation*: "Based on the Kenya experience, the 'laissez faire' management should only be considered where wildlife habitats have not been intensely altered, fragmented, reduced, manipulated, or degraded" [E/LSL].


Walker, B. H., Emslie, R. H., Owen-Smith, R. Norman, and Scholes, R. J. (1987). To cull or not to cull: lessons from a southern African drought. *Journal of Applied Ecology*, 24:381-401. *Annotation*: Fide Taylor and Cumming 1993:18: Conclusion of these authors is that culling was ecologically unnecessary; was "rather narrow and simplistic" [MPK].

Walker, Clive H. (1999). Five minutes to midnight. *The Rhino & Elephant Journal*, 4:16-19. *Annotation*: The author points out that it is incorrect to regard the ivory trade as the single reason for the population loss of the African elephant. Human population pressure and attendant land use needs, exclusion of the local people from economic benefits associated with protected areas, understaffed and unfunded conservation programs, and the need to assess the economic benefits of effective wildlife utilization must be considered if the elephant is to remain a viable species in the long term [ID-H/M&DR].


Walker, Clive H. (1992). New elephant populations on private land. *The Rhino & Elephant Journal*, 6:24-26. *Annotation*: Recent decision to let private landowners keep elephants on their property welcomed as a way to increase population in general and re-establish the species in appropriate areas of its earlier range. Since it is juveniles generally translocated, author queries if enough behavioral work has been done to provide for effective socialization. List of 17 areas where elephants now found, including KNP, which contains the largest population [ID-H/M&DR].


to the establishment of the Kumeleben Commission to investigate South African involvement in smuggling and the illegal sale of ivory and rhino horn from Namibia from 1975 to 1987. The Commission report concluded that there had been large-scale destruction of wildlife in Angola and northeastern Namibia, and that rhino horn and tusks thus obtained were exported via South Africa, with the involvement of the Military Intelligence Division [SLS].


5626 LieW WANG, Ying and MILIKEN, Tom. (1989). The ivory trade in Taiwan. In The ivory trade and the future of the African elephant (coord. S. Cobb), Vol. 2, Technical Reports, Section 3.10. The Ivory Trade Review Group, Oxford. Annotation: In the mid 1980s Taiwan, which was not a signatory to CITES, began to take on what might be considered a significant role as an import and forwarding agent for ivory. Regulations administered by the Board of Foreign Trade were established in 1987 and records of importers, countries of re-export or origin and the declared value are kept [ID-H/M&DR].


January 2000

Elephant/Proboscidea Bibliography: 1987-2000

263


5667 LeuW WESTERN, David. (1989). The case for banning the ivory trade. Swara, 12(5):11-14. Annotation: Growing ivory trade linked to continuing loss of elephants from poaching. Relates that to initial CITES program. Findings of recent Ivory Trade Review Group; if the elephant is to be saved from extinction, ivory ban is necessary [ID-H/M&DR].


5670 LeuW WESTERN, David. (1989). The ecological role of elephants in Africa. Pachyderm, 12:42-45. Annotation: Plant species richness was greatest in areas of medium elephant density [MPK]. Initial paper is included in the Ivory Trade Review Group; see "Ivory trade and the future of the African elephant", Volume 2, Section 5.2. Addresses problems associated with ecological arguments for conserving species, notes these arise because ecological role of a species is rarely obvious to non-ecologists, it is difficult to show consequences of losing a species until after it is gone. Examples of keystone role of elephants in African ecosystems cited. ANP example in Kenya illustrates what happens to biological diversity over time in relationship to widely varying population of elephants. Various ecological roles of elephants such as agents of seed dispersal, creators of openings or gaps in forest areas discussed [ID-H/M&DR].


5678 LwbW WESTERN, David. (1995). Elephant and people. Swara, 18(2):29. Annotation: Success of ivory ban and anti-poaching efforts are beyond dispute, but protection of elephants has created a new problem. Elephants which congregated in parks for safety have begun venturing out now that poaching is down, have become tamer and bolder, and begun to raid farms [E/ECM].


5681 LcjW WESTERN, David and COBB, Stephen. (1989). Elephants alive! Animal Kingdom, 92(3):24-29. Annotation: Adapted from 'A review of the Ivory Trade and Policy Options' prepared by the African Elephant and Rhino Specialist Group, IUCN, describes loss of African elephants to poaching and illegal trade in ivory. Death due to poaching is most significant cause of loss in elephant numbers although habitat loss and conflict with growing human populations are becoming increasingly important causes. Describes problems associated with illegal ivory trade and lack of effective international controls [ID-H/M&DR].


5686 LcwW WHEEL, Caroline. (1998). Creating peace parks in Africa. People & the Planet, 7(4):28-30. Annotation: The peace park will help to re-establish traditional elephant migration routes that were cut off when the fence was built to east of KNP in 1976 and elephant culling will no longer be necessary in the park [E/ECM].


savanna elephants are explored along with role of forest elephant in opening forest canopy, providing new habitats for other animal species and dispersing fruit seeds (LGR) [ID-H/M&DR].


Annotation: Densities of mammals in five sites in lowland semi-evergreen rain forest in LGR estimated using standard line transect methods. Forest elephants dominated biomass making up 52-89% while primates accounted for 6-30%. High biomass due to elephant densities emphasized importance to African rain forest [ID-H/M&DR].


Annotation: In LGR elephant movements are geared towards maximizing availability of favored fruit species, Sacoglottis gabonensis. Densities vary between sites as a result of differences in the forest composition and within sites in response to fruiting patterns. Fruit is important part of diet of forest elephants and elephant densities fluctuate locally, and even regionally in response to fruit availability. Mean group size of forest elephants is lower than that of savanna elephant and importance of fruit in diet may relate to this [ID-H/M&DR].


Annotation: 1,282 fresh elephant dung piles in rainforest environment of LGR monitored over two years to characterize time to reach Stage E as defined by Barnes and Jensen. Significant differences found in mean duration of dung piles in different months. Negative correlation between mean dung duration and rainfall in previous three months and mean humidity between 1-3 p.m. Most important factor affecting duration was fruit content in any given month, higher fruit content providing less fibrous material, leading to faster decay [ID-H/M&DR].


Annotation: Forest elephants observed between 1984 and 1991 in lowland rain forest in LGR. Elephants observed at 685 times, 383 were complete observations. Mean group size was 2.8, mean family unit size was 3.5. Adult females accompanied by one or more offspring, adult males most often solitary. Group sizes at LGR smaller than those for savanna elephants in East Africa and those in Malaysian rain forest. Elephants at LGR ate parts of 230 plant species from at least 52 taxonomic families, one species of fungus and soil [ID-H/M&DR].


Annotation: Considerable overlap in diets of lowland gorillas and forest elephants in LGR. Elephants accounted for 25 to 82% of biomass of large mammals in study of five sites. Comparison of elephants' responses to researchers, social organization and diet to those of gorillas and chimpanzees [ID-H/M&DR].


Annotation: Density of herbaceous plants of Marantaceae and Zingiberaceae families, favored food of elephants and apes measured in different forest types within Reserve. Stem densities, and phenology of leaf and fruit production varied among forest types which had different logging histories and tree species composition. Species of these families provide food items for primates and elephants. Future judgments about which habitats might be, or have been, optimal for apes or elephants should be based on detailed background knowledge of vegetation history and composition covering the whole area under consideration, which in turn should be related to the known ranging behavior of the animals [ID-H/M&DR].


Annotation: Outgoing research and management program in KNP, which involved culling of elephants from different areas of compartments in routine set up to maintain ecosystems in general and overall elephant population of about 7,000 [ID-H/M&DR].


Annotation: Elephant population of area now comprising KNP, was almost exterminated before proclamation of area as a game reserve in 1903. Population increased gradually through immigration from Zimbabwe and natural increases until 1967 when decision was made to control population through culling [ID-H/M&DR].


Annotation: Data collected from carcasses of randomly culled elephants where many animals are shot simultaneously [ID-H/M&DR].


Annotation: Aspects include home range, seasonal or periodic long distance movements, dynamic relationships between clans, herds or individuals and foraging behavior [ID-H/M&DR].


Annotation: Two methods of contraception used in KNP over past 12 months are “immuno-contraception” which uses porcine zona pellucida immuno-contraceptive vaccine, and hormonal control using subcutaneous oestradiol-17β implants. Immunocontraception technique has been effective in other locations, but after 12 months, some cows were pregnant. Oestradiol implants were successful as none of the treated cows was pregnant after six or 12 months” [E/ECM].


5708 ErmW Widodo, Sukohadi Ramono. (1991). Importance of sex-ratio and age-structure in the management of elephant population. IUCN/SSC Asian Elephant Specialist Newsletter, 7:9-12. *Annotation*: The elephant represents an extreme example of a K-selected species, or at subsistence, for which reproduction is the actual regulatory process, with high survival of adults [ESLS].


5714 LciW Wildlife Conservation International. (1992). The ivory trade and conserving the African elephant. *Wildlife Conservation International*, New York, WCI Policy Report no. 1, 16 pp. *Annotation*: WCI contends that reopening ivory trade per African nations’ request in 1992 will threaten elephants throughout African continent. Ban must stay in effect until: Elephants re-establish substantial healthy populations and are capable of serving their ecological functions throughout much of their range; wildlife conservation institutions in nations with elephant populations are strengthened and capable of monitoring and protecting elephant herds; and, producer and consumer nations develop stringent, effective controls on ivory trade which include reliable verification system of origin of ivory [ID-H/M&DR].


5718 BhyB Williams, Heathcote. (1989). Sacred elephant. Jonathan Cape Ltd., London, 175 pp. *Annotation*: Ancients from Brahma and Job to Aristotle and Pliny recognized and revered the elephant, yet modern man has decimated its ranks, stolen its tusks for piano keys and billiard balls and confined it to reserves. Author opens our eyes to the grace, social sophistication and sensitivity so that we may again acknowledge the elephant as "nature’s great masterpiece" [ID-H/M&DR].

5719 BpmB Williams, Terrie M. (1990). Heat transfer in elephants - thermal partitioning based on skin temperature profiles. *Journal of Zoology*, 222(2):235-245. *Annotation*: Infrared thermography was used to measure skin temperatures. Surface temperature profiles and surface area measurements of two elephants, an adult African and immature Indian, were used in standard equation for convection. Radiation accounted for 86% of the total heat loss. Heat transfer across the ears, an important thermal window at high ambient temperatures, represented less than 8% of total heat loss. Surface area of animals, and metabolic heat production calculated from total heat loss of the African scaled predicately with body mass while in contrast the thermal conductance of elephants was 3 to 5 times higher than predicted from allometric relationship for smaller animals [ID-H/M&DR].


5724 BwwB


5725 BgqB


5726 BwC


5727 BwC


5728 BwC


5729 BwC


5730 BwC


5731 BwC


5732 BwC


5733 BwC


5734 BwC


5735 BwC


5736 BwC


5737 BwC


5738 BwC


5739 BwC


5740 BwC


5741 BwC


5742 BwC


5743 BwC


5744 BwC


5745 BwC


5746 BwC


5747 BwC


5748 BwC


5749 BwC


5750 BwC


5751 BwC


5752 BwC


5753 BwC

YANG, Hong, GOLENBERG, Edward M., and SHOSHANI, Jeheshel. (1996). Phylogenetic resolution within the Elephantidae using fossil DNA sequence from the American mastodon (Mammut americanum), as an outgroup. Proceedings of the National Academy of Sciences USA, 93(3):1190-1194. Annotation: Using non-proboscidian taxa (human, pig, and rhino) and a proboscidean taxon, American mastodon,


TO OUR YOUNG READERS AND TO READERS YOUNG AT HEART

This section of ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY is geared to develop and expand interest in elephants and to stimulate future scientists to get involved in wildlife conservation, especially of elephants. Elephants have been classified as "Keystone Species", or "Super Keystone Species" [a]. They modify their habitat and other animals benefit from these changes. Because elephants are the largest living mammals, saving enough habitat for them to live comfortably ensures that smaller animals and plants in the same ecosystem can be saved for future generations. Predictions for a gloomy future for elephants have been made; we must do our utmost to preserve a better future for elephants [b].

Many of you have written to us, and we were unable to respond to the myriad letters; we apologize for any inconvenience this may have caused. A large number of the letters from children were decorated with drawings. We present two of them here, see above.

The drawing on the left is from Dawn Grimes, 8 years old (in 1984) from Belle Ann Elementary School, Ortonville, Michigan USA, and the one on the right was sent with a letter (in 1991) from Kara Chapin, Robert Compeau, and Kathryn Revitte, Second Grade Class of Marble Elementary School East Lansing Michigan, USA.

We hope that the annotated references given here [c] and the section "Frequently Asked Questions about Elephants" [d] will answer your questions and inspire you to share your knowledge with your friends and families. The Editors.

FOOTNOTES: [a]. see Reference nos. 4642, 5670, 5127, 5128; [b]. see Reference no. 5125; [c]. see introductory comments and explanation for codes at the beginning of ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY, and other references there that may be suitable for young readers; [d] see Contents of this issue of Elephant.
PART II. JUNIOR ELEPHANT BIBLIOGRAPHY


5785 EfcC Barry, David and Peronne, Donna. (1994). The Rajah's rice: a mathematical folktale from India. W. H. Freeman and Company, New York, 28 unnumbered pages (Scientific American Books for Young Readers). Annotation: An Indian ruler (raja) in a small village in ancient India lived in a luxurious palace with 20 elephants who were not fed well. The rajah cared more for himself than the villagers. A clever girl named Chandra (the elephant Bather) "healed" the elephants and gained the rajah's confidence; he promised her any reward she wanted. Instead of choosing gold or precious jewelry, she asked him to give rice to hungry villagers in such a way that on the first square of a chessboard, he would put two grains, and double the amount in every square (2 grains in the first square, 4 in the second, 8 in the third, and so forth). By the 64th square of the chessboard, the rice amounted to the size of Mt. Kilimanjaro (or "you get India, covered knee deep in rice"), but the king did not have enough rice in his palace to complete the reward as he promised, so he asked Chandra what he should do. "You can give the people of the village the land the they farm, and take only as much rice as you need for yourself", answered Chandra [JS].


270 Elephant Volume 2, Number 4

5801 LgcW

5802 +vhB

5803 LzfW

5804 BajB

5805 CcmC

5806 +gvB

5807 BygU

5808 BgzB

5809 BgzB

5810 LjgW

5811 *rvU
MARTIN, Rafe and GAMMELL, Stephen. (1989). Will’s mammoth. Putnam, New York, unpaged. Annotation: Fiction. This is a “tale of the imaginary adventures of a little boy who is waiting for his supper. Will’s adventures aboard his faithful mammoth are strikingly illustrated by S. Gammell, winner of 1988 Caldecott medal” [E/FRD].

5812 EqlC

5813 EqlC

5814 LjwW

5815 LjgW

5816 LjwW

5817 BgaB

5818 LgcW

5819 LbjW

5820 LjwW

5821 LgcC
PEFFER, Wendy. (1992). Popcorn Park Zoo: a haven with a heart. Julian, Messner, Englewood Cliffs, New Jersey, 64 pp. Annotation: Description and photo essay of institution which rescues and cares for animals that are sick, old, abused or about to be destroyed. Includes chapter on a young male African elephant, “Sonny”, that had outgrown his home in New Mexico and was placed in Popcorn Park Zoo by Friends of Wildlife in California. Photo on pp. 52-3 shows healed tear in his trunk where a big cat may have injured him in Africa [E/JLP]. See Reference nos. 4160, 5179.

5823 LjgW Pringle, Laurence and Moss, Cynthia. (1997). *Elephant woman: Cynthia Moss explores the world of elephants*. Atheneum Books for Young Readers, New York, 42 pp. **Annotation**: Photographs at elephant research camp among palm trees in ANP, elephants, young and old, frolicking, ecologizing, exploring bones of dead elephants. They can be recognized from each other by tusk shape, size, markings on their ears [JS].


5832 BpjB Shoshani, Jeheskel. (1999). It’s a nose! It’s a hand! It’s an elephant’s trunk! *Natural History for Kids*, supplement to “Natural History Magazine”, October 1999. **Annotation**: Adapted from an article by Jeheskel Shoshani, “Natural History”, November 1997. Find out what elephants can do with their versatile trunks [E/ECM].

5833 LfzW Sierra, Judy. (1992). *The elephant’s wrestling match*. Lodestar Books, New York, unpagged. Illustrated by J. Brian Pinkney. **Annotation**: Of all the animals challenged by the mighty elephant, only a tiny bat was able to defeat him in a battle of wits. Retold from a folktales of the Bula people, Cameroon, Africa [E/ECM].


5839 EqhC Tsuchiya, Yukio and Lewin, Ted. (1988). *Faithful elephants: a true story of animals, people and war*. Houghton Mifflin Company, Boston, 30 unnumbered pages. **Annotation**: 30 Text by Yukio Tsuchiya, water colors by Ted Lewin, translated from Japanese by Tomoko Tsuchiya Dykes. A moving, beautifully illustrated, true tale of “John”, “Tonky”, and “Wanly”, three elephants which lived in Ueno Zoo, Tokyo, Japan, during the World War II (1941-1945). The elephants were left to die (John is said to have died after 17 days of starvation) because there was a fear that if bombs hit the city’s zoo some animals would escape and run amuck in the city (the elephants are buried on zoo grounds). First published in Japan in 1951, it has seen 70 printings, and is read aloud on Japanese radio every year to mark the anniversary [KMS]. John was starved to death (over 17 days), two others were also killed by withholding food and water!!! See also Reference no. 2460 [MPK].

ADDENDA to ELEPHANT / PROBOSCIDEA BIBLIOGRAPHY


5849 LiC Salih, Halima A. A. (1994). International convoy registers Sudanese ivory. SUDANOW (April, 1994), Vol. 19(4):24-25. Annotation: Tom Miliken, Director East/South Africa office of TRAFFIC visited Sudan (November 1993) to record tusks in storage. Tusks are said to be legally obtained, numbering 10,884 and valued at $25,000,000; some tusks are about two meters long (based on photographs in Reference no. 4962[JS].


---

End of Elephant / Proboscidea Bibliography. ☞