

24th Annual meeting of the Society for Conservation Biology, Edmonton, Alberta, July 3-7, 2010**09:45 Large Carnivores and Human Conflict Geist, V*, University of Calgary**

The ability to survive consistently all African predators on the ground at night, marks the beginning of human evolution 2.0-2.5 years ago, segregating ape from human. We alone among primates do not require trees. It freed us to evolve as carnivorous herbivores, changing from man the hunted to man the hunter. Our dispersal into Eurasia was predicated on dealing with new predators such as bears and wolves. Our North America colonization was delayed some 40,000 years till the collapse of the Pleistocene gigantic, food-stressed predators. Already in the Upper Paleolithic the species patterns in cave art indicate that wolves and hyenas were intensely disliked, much as is in modern times. There is a long history to human - wolf conflict. Where unarmed humans meet wolves, tragedies develop; where wolves meet well armed people co-existence is possible. This conflict deals with predation on humans, livestock and wildlife, and with the effects of parasites and diseases. Historically, Grimm's fairytale of little Red Riding Hood was rooted in painful reality.

Symposium SY28-135204: *Conserving Large Mammal Predator-Prey Systems in a Changing World***Large Carnivores and Human Conflict**

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From the many topics one can discuss about the conflicts of humans with large carnivores, I shall briefly deal with three, beginning with the basic human anti-predator adaptations. The following is based on zoology, not on anthropology as these topics are alien to that discipline.

Early anti-predator adaptations

During our evolution our ecological fate was that of prey, as illustrated all too evidently in the fossil record¹. It was our ancient fate to be killed and eaten and our primary goal to escape such. It still is. Ironically, our geographic pattern of speciation from equatorial forests to Arctic and Alpine, unique among primates, mimics that of other large herbivores, not of omnivores and least of all of carnivores². Yet our digestive physiology indicates a long evolutionary history of meat eating. We are thus a living oxymoron, a meat eating herbivore. And we still have the herbivores craving for salt, and we spice the

meat we eat preferably with plant poisons. (Yes, one can generate amusement with unconventional investigations).

This contrasts all the more with our ability to escape predation in the absence of trees (or cliffs) to climb. That is, we can escape predation, day or night, while on the ground. We also have regressed anatomically in climbing adaptations³. I have argued in detail that the ability to survive, consistently, all African predators on the ground at night, marks the beginning of human evolution 2.0-2.5 years ago, segregating ape from human⁴. We alone among primates do not require trees. It freed us to evolved from *man the hunted* to *man the hunter*. That our efforts to escape predation were not and are not always successful is illustrated all too clearly when large carnivores begin to hunt us systematically⁵.

The ancient escape from predation at night was probably based on a thorn covered hut, essentially a thorny ground nest, taking advantage of the predators disinclination to penetrate a wall, as well as stick its face into thorns and injure its eyes. Further protection would come from mimicking the threat sounds of predators, setting in motion the – among mammals - unique human ability to mimic sounds. This can be reinforced by jabbing a sharp stick into the predator, taking advantage of the predators heightened sensitivity to injury.

One can also benefit at night by generating an aversion to humans during day light encounters. Such had to be generated, for without it one cannot stalk prey, or keep prey after killing such or avoid predators following one into camp. One cannot forage for plant food and dig noisily for such with digging stick, or be noisy while in camp without advertising oneself widely to predators. We are a dreadfully noisy species, night or day. We banged rock on rock to make tools, snapped and scraped branches to make shelters or tools, yelled, sang and laughed or screamed in disputes for all predators to hear for virtually miles around. We could not make tools without freedom from the tyranny of predation as we needed to concentrate on doing Craft, let alone Art, and not look and listen anxiously if there were predators approaching. How can one laugh dance and sing if that attracts predators, tell or listen to stories yet fear a predator's approach? How can one even relax and talk safely, for the normal human voice carries very far, and predators have fine hearing. Freedom from predation is thus absolutely crucial to becoming human.

The most likely way of day-time protection was to mob predators. This would select for increase in our body size and thus the strike force of digging sticks or clubs. It would probably select for dark skin (dark coloration is universal in species that confront predators). It would also select for *vocal mimicry*, and *synchrony* of producing sounds.

Deliberate sound manipulation would be the beginning of a new human instinct: *vocal mimicry*. The needs for security at night would begin the process of selecting for vocal mimicry. This parasitizes the inherent fear of large predators to tangle with their own kind. After all, predators need to minimize injury to themselves, a such impede hunting and may in addition lead to attacks by conspecific. Vocal mimicry would thus add the “fear” factor as a deterrent to “enclosure” + “thorniness”. When we mimic sounds we simultaneously synchronize, or time our response, as quick repetition is essential for accurate rendition of the imitated sound. That is, the rare attribute, vocal synchrony⁶, is a mandatory part of mimicking sounds. Moreover, with synchrony, we can in group vocalization greatly magnify the sounds produced, adding to the deterrent. Vocal mimicry will, ultimately, serve in developing language and music and as a lure in hunting, but that is some time in the future!

Finally, we would greatly increase security by systematically destroying the helpless young of predators, that is generate predator-free zones. There is some evidence indicating that that's exactly what we did. Extensive archaeological excavations at Bilzingsleben and Schöningen in Germany of camping and butchering sites dating back some 400 000 years produced over decades huge numbers of bones that had been broken, worked and discarded by fairly advanced *Homo erectus*. At Schöningen this includes among others complete skulls of horses, indicating that intact horses heads of some 20 horses had been discarded. The hunt was apparently so successful, and provided so much meat and fat, that the hunters discarded the heavy heads. Most remarkably, neither the horses at Schöningen nor the bones of red deer, horses, rhinos, elephants or bears were worked over by scavenging predators. Since the archaeological sites suggest a fertile, productive landscape rich in wildlife, there would have been present loins, hyenas, bears and wolves. However, at both sites, the predators did not touch the bones or horses heads. Therefore, the predators were not present, and the most likely reason for predators being absent is that they were eliminated and harassed out of these areas under human control⁷.

Did large predators keep humans out of North America?

Our dispersal into Eurasia was predicated on dealing with new predator such as bears and wolves. That was mastered already very early by *Homo erectus* moving out of Africa as early as 1.6 million years ago⁸. However, the colonization of North America by humans was so late in history that it begs the question. After all, Australia was colonized by modern humans shortly after the *out of Africa* event some 60,000 years ago. Yet it took almost another 50 000 years before North America was colonized. Australia could only have been settled via marine crossings. Coastal boat technology was thus probably present for tens of thousands of years before the Americas were settled. What kept us from following the Asian shore line and crossing into North America? I suggested some time ago that it was most likely the species-rich mega-fauna of large, specialized and highly stressed predators⁹. Christy Turner suggested that Cave hyenas may have stopped us in Siberia¹⁰. Clearly, this implies that over the many thousands of years very many attempts were made to land in North America. It is striking that the oldest human habitations in the Americas are found in South America preceding those in North America by thousands of years. I dug up data about the number of hearths found per thousand years, which indicated a slow increase over some 6,000 years with a concomitant decline in the number of species of North America's native fauna. It suggested a slow, not fast extinction, and a slow not fast human colonization. It would be insightful to revisit this data again, as much more and better material should be available now. Also, I did not consider then the possibilities of domestic dogs as hunting companions allowing us to kill North American Pleistocene predators, much as Inuit hunters used dogs and lances to hunt polar bears. Still, the short faced bear *Arctodus simus* was larger than the polar bear and probably much more assertive, as suggested by the many skulls in trap caves. Even with dogs it is difficult to see how we could have handled this giant, granted the difficulties in killing the much smaller grizzly bear. The hypothesis that a specialized guild of large, assertive predators kept us out of North America raises the question of when and how have other species of wildlife kept us from settling landscapes, ie. elephants¹¹.

Wolves and conservation

This is a deeply troubling subject from the perspective of scholarship in view of ongoing advocacy and some – in retrospect – unfortunate miss assessment of historical material. I must confess that I too embraced the conventional view about wolves throughout my academic career and four years into retirement, due to my years of experience with painfully shy Canadian wilderness wolves. Then a misbehaving pack on Vancouver Island¹², and a review of historical matters, taught me differently.

Moreover, to me the matter of large predators is not merely an academic matter, but a daily concern, for where I reside there are wolves, cougars and black bears virtually at our doorsteps, while our neighbors and my wife Renate had encounters with misbehaving wolves and bears. Predation turned here a wildlife paradise quickly into its obverse.

There is a long and unhappy history to human - wolf conflict, beginning already in the Upper Paleolithic. Cave artists, who recorded favored species and events apparently for the benefits of the deceased, pointedly left out wolves and cave hyenas¹³. This suggests that wolves and hyenas were disliked, much as is in historic times. How extensive wolves interacted were in human history is illustrated, for instance, by the large number of proverbs and sayings pertaining to wolves in Russian culture as discussed in chapter eleven (pp. 141-170) of Will N. Graves' book *Wolves in Russia* (2007 Detselig, Calgary), or the over 3,000 deaths by wolves in France as discussed by Jean-Marc Moriceau, *Histoire du méchant loup : 3 000 attaques sur l'homme en France* (2007). I was involved in editing and publishing Will N. Graves 2007 book which was subsequently translated into Finnish, and is in that version now on its second edition. Will Graves and I have been vindicated by the publication of major review of wolves in Russia by Professor Christopher Stubbe¹⁴. I was asked along with three other scientist to do an independent assessment of the Kenton Carnegie tragedy, by Kenton's parents. I prepared a report that circulated on the Internet¹⁵, and wrote an article on the matter¹⁶. The manner in which wolves target alternative prey¹⁷, it turned out, is identical to that described years earlier by Rex Baker and Bob Timm observing coyotes targeting children in urban parks¹⁸.

How could one uphold the view that wolves are harmless to people, despite centuries of recorded experience to the contrary in Russia¹⁹, Finland²⁰, France²¹, Italy²², Sweden²³, Germany²⁴, India²⁵, Afghanistan²⁶, Korea²⁷, Japan²⁸, central Asia²⁹, Turkey³⁰, Iran^{31, 32} or Greenland³³? And while details in Hazaribagh, Northern India, may be different³⁴ the causes of wolf predation on humans are much the same: scarcity of prey or opportunity to kill livestock, *de facto* protection of wolves, followed by systematic targeting of peoples as prey, mainly children. Where unarmed humans meet wolves, tragedies develop; were wolves meet well armed people co-existence is possible. This conflict deals with predation on livestock, wildlife and humans, as well as with the effects of parasites and diseases. Historically, Grimm's fairytale of *Little Red Riding Hood* was rooted in very painful reality.

The hope of conserving wolves in settled landscapes³⁵ is an illusion. Historically, wolves have not been compatible with settled landscapes, and the current wolf-wars in the US west, in Scandinavia or Germany appear to be a re-run of history. It appears to me that, ultimately, large predators, especially wolves that hybridize with dogs, can only be conserved in large reserves, the likes of which need to be negotiated. I have discussed this in detail elsewhere.³⁶

- 1 Donna Hart and Robert W. Sussman 2009 *Man the Hunted*. Perseus Books, Philadelphia.
- 2 Valerius Geist 1978 In *Life Strategies, Human Evolution, Environmental Design*. Springer-Verlag, New York.; 1989 *Deer of the World*, Stackpole Books, Mechanicsburg Pa.
- 3 Oxnard, C. 1975. *Uniqueness and Diversity in Human Evolution*. University of Chicago Press, Chicago, Ill.
- 4 As a field biologist I have always taken for granted that humans were potential prey and treated us as such in my 1978 book “*Life strategies, Human Evolution..*”, and thus dwelt in detail on how humans avoided predation in the absence of trees. It appears anthropologists now also discovered humans as prey (Donna Hart & Robert W. Sussman 2009 *Man the Hunted*. Perseus Books, Philadelphia.) However, their emphasis on our tree-bound relatives is not terribly relevant as humans did not evolve like primates, but like large terrestrial herbivores. Kortland, A. 1980. How might early hominids have defended themselves against large predators and food competitors? *Journal of Human Evolution* 9, 79-112. Geist, V. 2008 Death by Wolves and the power of Myths: the Kenton Carnegie Tragedy. *Fair Chase* Vol. 33, Pp. 29-33; Geist, V. 1989. Did predators keep humans out of North America? In J. Clutton-Brock (ed.) *The Walking Larder*. (Proc. Theme 1, Section 4, World Archaeological Congress, Sept. 1-7, 1986.) Southampton. Unwin Hyman, London. pp. 282-294.
- 5 Corbett, J. *Omnibus*. The Man-Eaters of Kumaon, The Temple Tiger, The Man-Eating Leopard of Rudraprayag). Oxford University Press, Delhi;Capstick, P. H. 1981. *Maneaters*, Safari Press, Ca. pp. 108-114;Pavlov, M.P. 1982. *The Wolf*. Moscow: Lesnaya Promyshkennost'. Pavlov, M. P. 2007. The danger of wolves to humans. Appendix A. pp. 173-194 in Graves, W. Wolves in Russia, Detselig, Calgary;Loe, J. and E. Röskeft 2004 Large Carnivores and Human Safety. *Ambio* Vol. 33. No. 6 pp. 283-288;Lappalainen, A. 2005. “*Suden jäljet*”, (*The Tracks of the Wolf*), Hämeenlinna: Karisto Oy, ISBN 952-5118-79-7;Frumpp, R. 2006. *The Man-Eaters of Eden: Life and Death in Kruger National Park*. The Lyons Press. 240 p; Graves, W.N. 2007. *Wolves in Russia. Anxiety through the Ages*. Calgary: Detselig. 223 p; Moriceau, Jean-Marc (2007). *Histoire du méchant loup : 3 000 attaques sur l'homme en France*. pp. p.623. ISBN 2213628807. Geist, V. 2008 a. Death by Wolves and the power of Myths: the Kenton Carnegie Tragedy. *Fair Chase* Vol. 33, Pp. 29-33; Geist, V. 2008 b. Commentary. The Danger of Wolves. *Wildlife Professional* Vol 2, No. 4 pp. 34-35. Winter edition.
- 6 Steven Mithen 2005. *The Singing Neanderthal*. London: Orion House. p. 206.
- 7 H. Thieme & R. Maier (Hrsg.), Archäologische Ausgrabungen im Braunkohlentagebau Schöningen, Landkreis Helmstedt (Hannover 1995) passim; Fundchronik Niedersachsen (Beihefte der Nachrichten aus Niedersachsens Urgeschichte/NNU). The Schöningen wooden spears. Hartmut Thieme 1997 Lower paleolithic hunting spears from Germany. *Nature* 385 pp. 807-810. Dietrich Mania 2004 Die Urmenschen von Thüringen, as well as an interview of Hartmut Thieme by Henning Engeln about the Schöningen site. *Spektrum der Wissenschaft*, October 2004 pp. 38-50
- 8
- 8 Richard Klein and Blake Edgar 2002. *The Dawn of Human Culture*. John Wiley & Sons, New York.
- 9 See: Geist, V. 1989. Did large predators keep humans out of North America? pp. 282-294. in J. Clutton-Brock (ed.) *The Walking Larder*. Unwin Hyman, London
- 10 Christy Turner's 2008 hyena hypothesis(<http://abcnews.go.com/Technology/story?id=97822>).
- 11 Ian Parker, personal communication June 14th 2010
- 12 Geist, V. 2003. Vancouver Island Wolves. *The Virginia Wildlifer*, June 2003, pp. 35-39
- 13 R. Dale Guthrie 2005. *The Nature of Paleolithic Art*. Chicago: University of Chicago Press.
- 14 Stubbe, C. 2008. Der Wolf in Russland – historische Entwicklung und Probleme. *Beiträge zur Jagd- und Wildforschung* 33: 325-364 (The Wolf in Russia – Historical Development and Problems)
- 15 When do wolves become dangerous to humans” en.wikipedia.org/wiki/Wolf_attacks_on_humans
- 16 Geist, V. 2008. Death by Wolves and the power of Myths: the Kenton Carnegie Tragedy. *Fair Chase* Vol. 23, No. 4. pp. 29-33. Winter issue. For an independent assessment of the Kenton Carnegie tragedy see: Teague, M. 2008 A More Dangerous Game Bears On The Golf Course, Deer On The Windshield, Wolves On The Walk Back Home: How the decline of hunting is changing the natural order of predator and prey. *Sports Illustrated*, Volume 109, Issue 20, p. 53, November 24, 2008.
- 17 See Appendix B, which I wrote, in Graves 2007.
- 18 Baker, R. O. and R. M. Timm 1998. *Management of conflict between urban coyotes and humans in southern California*.

- Pp. 229-312 in R. O. Baker and A. c. Crabb eds. *Proc. 18th Vertebrate Pest Conference*, University of California, Davis
- 19 See Will N. Graves 2007 (edited by V. Geist) *Wolves in Russia*, Detselig, Calgary. Mikhail P. Pavlov, 1982. "The Wolf in Game Management", 2nd edition 1990; Publisher: Agropromizdat, Moscow.
- 20 The historian Dr. Antti Lappalainen (opetusneuvos.lappalainen@kolumbus.fi, +35895416946) published his research findings on lethal wolf attacks on humans in Finland under the title "Suden jäljet", *The Tracks of the Wolf*, ISBN 952-5118-79-7 Hämeenlinna: Karisto Oy, 2005. Capstick, P. H. 1981. *Maneaters*, Safari Press, Ca. pp. 108-114. Dr. Jouko Teperi, Finnish historian published 1977 of The Historical Society of Finland (Suomen Historiallinen Seura). (SUDET Suomen rintamaiden ihmisten uhkana 1800-luvulla), "Wolf as a threat to the rural population in Finland in the 19th century" ISSN 0073-2559, ISBN 951-9254-10-2.
- 21 (French) Moriceau, Jean-Marc (2007). *Histoire du méchant loup : 3 000 attaques sur l'homme en France*. pp. p.623. ISBN 2213628807. Jean-Marc Moriceau is a professor of modern history at the University of Caen and a specialist in rural history.
- 22 Aldo Oriani and Mario Comincini 2002. Living with death in the eighteenth century http://www.storiadellafauna.it/scaffale/testi/oriani/oria_comi.htm
- 23 Connolly, Sofia. 2000. Bringing wolves back to Sweden. BBC news, Feb. 24th 2000, 10:41 GMT
- 24 Hans Friedrich von Flemming. 1749. *Der Vollkommene Teutsche Jäger*, Leipzig. P. 108. *Brehms Tierleben*, p. 137 in my condensed ed. 1952, Safari Verlag, Berlin. D. Müller-Using, M. Wolf and E. Klinghammer 1975 p. 203 in *Grzimek's Animal Encyclopedia*, Vol. 12 Mammals III, Van Nostrand Reinhold Co. New York.
- 25 Jahala and Sharma 1997 Child-lifting by wolves in Eastern Uttar Pradesh, India. *J. Wildlife Research* 292:94-101). Jahal 2003 Status, Ecology and conservation of the Indian wolf *Canis lupus pallipes* Sykes *J. Bombay Natural History Society* 100 (2&3) Aug.- Dec. pp. 293-307). See also Rajpurohit, K. S. 1999. Child Lifting: wolves in Hazaribagh, India. *AMBIO* 28(2), 162-166.
- 26 Roy Stewart (2004) In his book about travels in Afghanistan "The Places in Between" (p. 123, Harcourt Books). On the Internet newkerala.com Kabul 18 Feb 2005, It was reported that hungry wolves were driven by freezing cold in the mountains to invade Afghanistan's villages and have killed and devoured four people in the last two weeks. This was reported by the official Bakhter News Agency (BNA). Heavy snowfall is driving wolves from the mountains toward villages and in addition to four people being killed by wolves 22 have been bitten in Paktia Province which borders Pakistan.
- 27 The Korean experience is summarized by Robert Neff in *Devils in the Darkness*, 2007/05/23, copyright 2007 *Ohmy News*. http://english.ohmynews.com/articleview/article_view.asp?menu=c10400&no=362934&rel_no=1&isPrint=print
- 28 Brett L. Walker. 2005. *The Lost Wolves of Japan*. Published by University of Washington Press
- 29 For instance: "On the arid steppes of western Uzbekistan, some 20 villagers have been reported injured by wolves in five months. Two of them -- in the Muinak District -- died in early February as a result of their wounds" Radio Free Europe, March 15th 2005, Central Asia: in a story entitled *Cohabitation Of Wolves, Humans Proves Difficult*.
- 30 Also on the internet on timberwolfinformation.org/info/archieve/newspapers on 2/27/05 from Ankara Turkey it was reported that a ten year old boy named Onur Bahar was killed by a wolf in a field near his house on the outskirts of Talas. The wolf went for the boy's throat and torn his left arm off.
- 31 An Iranian colleague reported that in rural areas of Iran villagers were disarmed and lived in great fear of wolves. Possession of weapons during the Shah's regime was severely punished by the secret police.
- 32 Baltazard. M., and M. Ghodissi (1954) Prevention of human rabies, treatment of persons bitten by rabid wolves in Iran. *Bulletin of the World Health Organization*, Vol. 10, No. 5, pp. 797-803.
- 33 Freuchen, P. 1935. *Arctic Adventure*. Farrar & Rinehart, New York. Peter Freuchen lost a companion to wolves (p. 23, pp. 329, 332), shot a wolf stalking his children (pp. 347-348), had harrowing experiences with wolves trying to enter his cabin (pp. 16-19). His writings support an observation made to me by a long time resident and hunter in Greenland: where there are wolves, there are no people and vice versa!
- 34 Rajpurohit, K. S. 1999. Child lifting: Wolves in Hazaribagh, India. *Ambio*, Vpl. 28. No. 2. pp. 162-166. March issue
- 35 C. D. C. Linnell et al. 2002 *The Fear of Wolves*, Norse Institutt for Naturforskning. NINA Oppdragsmelding 731, Trondheim, Norway.
- 36 Geist, V. 2009. „Let's get real. Beyond wolf advocacy, towards realistic policies for carnivore conservation. *Fair Chase* Vol. 24. No. 2. pp. 26-30.