## Compensatory Rebound Effect

Q: What is the compensatory rebound effect?

A: The compensatory rebound effect is the reproductive response of a species by which a sudden increase in food resources, due to a sudden decrease in the population, induces a high reproductive rate. When applied to deer, it means that when large populations are killed, the remaining deer benefit from enhanced food supply and begin to produce more deer (twins) and begin to reproduce at a younger age (as early as 1 yr. old).

Q: What evidence do we have that the deer population will rebound after a deer cull or hunting season?

A: Those who advocate against deer culls as an effective, long term strategy for reducing deer populations have long argued that killing large populations of deer will only serve to increase the deer herd size in a relatively short period of time because of compensatory rebound. The proof of this argument can be found in wildlife reports from around the country. Here are just a few examples:

"Mean number of fetuses per pregnant doe was greater on hunted land … than on nonhunted sites… Incidence of twinning [doe producing twins] was 38% on hunted sites and 14% on nonhunted sites. No twinning was observed among pregnant fawns or yearlings from nonhunted areas, whereas 6 of 33 (18%) of the pregnant yearlings and 1 of 3 (33%) pregnant fawns from hunted areas carried twins." Richter, A. R., and R. F. Labisky. "Reproductive Dynamics Among Disjunct White-Tailed Deer Herds in Florida." J. Wildl. Manage. 49(4):964-971 (1985)

"Hunting mortality is believed to be largely compensatory partly because it takes place before the harsh winter period, when most natural deer deaths occur. Because hunting keeps deer density below maximum, the deer surviving a hunt have more food (better habitat) and come through the winter in better condition than those in unhunted herds." Robert L. Downing, wildlife biologist, publisher of over 25 scientific papers on deer, in "Restoring America's Wildlife: 1937-1987" (54). United States Department of the Interior Fish and Wildlife Service.

In its 1990 report, 'An Assessment of Deer Hunting in New Jersey,' New Jersey Fish and Game… show[ed] that even during hunting seasons in which killing female deer was the objective (antlerless seasons), the remaining females had increased birthrates that not only replaced the ones killed, but increased the overall size of the herd." "Wildlife Fertility Control: Frequently Asked Questions on Immunocontraception." PNC, Inc. http://www.pzpinfo.org/pzp_faqs.html (last accessed November 2008)

"By keeping the deer population below the carrying capacity of the available habitat, more forage (nutrition) is available per deer. Thus, does are healthier, reproductive success is higher and more does are able to carry two fawns. Ironically, this can result in a greater deer harvest each year. Depending on the relationship of the population and the carrying capacity, an 'optimum sustained yield' can be achieved where a relatively high reproductive rate allows an abundant harvest each fall. With high-quality habitat and increased nutrition, the percentage of

doe fawns that breed their first fall increases (sometimes up to 25 percent). Also, a higher percentage of yearling does produce two fawns instead of one. Because fawns are born at approximately a 1:1 sex ratio, more bucks may be born each year. Therefore, in some areas, you actually can increase the number of bucks born by shooting more does." "Quality Deer Management: Guidelines for Implementation," 6. Agricultural Extension Service, The University of Tennessee. http://www.utextension.utk.edu/publications/pbfiles/pb1643.pdf (last accessed November 2008)

"Population models show that about 30 percent of a healthy deer population - including does - can be harvested each year without reducing the next year's population." Dr. Tony J. Peterle, former Professor of Zoology at Ohio State University and former Editor-in-Chief of the Journal of Wildlife Management, in "Restoring America's Wildlife: 1937-1987"(62). United States Department of the Interior Fish and Wildlife Service.

Q: Why do pro-cull advocates say that compensatory rebound only applies to starving deer?

A: Pro-cull advocates in Michigan claim that "at this point in our region's deer population, the herd is not considered stressed and the reproductive rates are normal (usually twins) so the rebound effect does not occur if deer numbers are reduced by hunting." This statement conflicts with the claims the same pro-cull advocates make about Michigan deer herds being at historically high rates and that hunting is necessary to prevent deer from starving. Moreover, it is not an empirically based answer to the studies discussed above concerning the compensatory rebound effect.

Q: Aren't deer culls (not hunting) a way to prevent deer from dying of starvation or chronic wasting disease?

A: There is no evidence that deer are starving anywhere in Michigan. When we hear people say that "the deer are going to starve, therefore we should hunt them so they don't starve," we believe that they're playing on the public's sense of compassion. It is completely illogical to make the argument that we should prevent deer from dying by killing them. In terms of chronic wasting disease (CWD), this is a serious neurological disease that affects deer, elk and moose. In Connecticut in 2007, a total of 583 testable samples were collected from deer harvested during the hunting seasons and from road-killed deer throughout the state. All tests were negative for CWD. Tests in Michigan from the 2008 hunting season harvest.were also negative