The lighter side

Photoperiod disruption of physiological activity of gonadotrophs in the anterior pituitary gland and its effects on antlerogenesis in captive cervids held in polar regions

Jim Heffelfinger

Past research has shown that artificially induced variations in photoperiod can cause changes in adenohypohyseal acidophil cell morphophysiology resulting in an irregular timing of antlerogenesis in some male cervids. Casual observation of a small herd of captive cervids held in a polar region has revealed alarming antler cycle irregularities. Domesticated reindeer (*Rangifer tarandus*) from a captive herd at the North Pole were observed on the evening of 24 December in each of 5 years, 1990–1995. All 8 individuals were consistently observed in full velvet.**

These abnormal antler cycles and inhibition of secondary ossification may be caused by insufficient vascular testosterone levels resulting from an endocrine system which is maladapted to that polar region. The acidophil cell cytoplasmic area in these individuals is apparently responding to photoperiod cycles in the manner in which they evolved. This maladaptation may have significance from a survival standpoint since the highly vascularized antlers would result in an undetermined but certainly detrimental amount of heat loss.

Another abnormality which has been reported in this herd is the occurrence of a young male with a rhinarium distinctively colored red (some even say it glows). It is unclear if this abnormality is a mutation causing an unnatural pigmentation, but it apparently affected the individual's social interactions with other members of the herd. This may also be related to diet as the owner is reported to feed some sort of special corn.***

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*Biographical note: We were out in mid-July in Arizona, south of Yuma—doing field work on cover-seeking behavior of desert mule deer—when Jim first developed this theory. Jim forgot to wear his big white hat that day.—**Anonymous colleague***

**Editorial comment: To those of our readers about to contact the editorial office in regard to the unreplicated results, please be advised that the matter has already been brought to our attention by the Department secretary and an underemployed graduate student. After considering the matter in depth, we were able to determine that (1) Mr. Heffelfinger did not, apparently, present any results; and (2) in such cases, replication, while perhaps desirable, is not strictly required; thus, Mr. Heffelfinger has circumvented this thorny issue. Nevertheless, the Bulletin has undertaken an independent survey to gather opinion on this matter. Over the past month, we have received countless individual confirmations of Mr. Heffelfinger's sightings. Corporate leaders in retail sales and manufacturing have been overwhelming in their support, in principle, of Mr. Heffelfinger.*

***Furthermore, because this paper has not considered the likelihood of adaptive response to predation (polar bears [Ursus maritimus] are common in the region), we intend to confer with J. Wehausen to establish the most parsimonious explanation of Mr. Heffelfinger's findings. We also will be contacting R. Lancia and The Wildlife Society's technical review committee on wildlife research to ascertain that adaptive resource management is being applied to maintain this unique polar resource.*