

the chemical. Those salmon unexposed as fingerlings to the chemical, whether having recent exposure to the chemical or not, moved through this scented area with no recognizable course change. These results and those indicating a "sensitive period" for the formation of this chemical "memory" indicate that an imprinting process may be involved. (Supported by NSF grant GB 7616; by University of Wisconsin Sea Grant, Department of Commerce, NOAA 2-35209; and by NSF grant GF 343.)

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NORMAN OWEN-SMITH, University of Wisconsin

Dominance, territoriality and social organization in the white rhinoceros. (Introduced by J. T. Emlen) (Motion Picture)

The classical definition of territoriality in terms of defense of an area is misleading, at least for mammals. It obscures the subtle variability in spatial patterns observed and hampers consideration of evolutionary functions. This is illustrated by the results of a field study of the white rhinoceros carried out by the author in South Africa. In the white rhinoceros, dominant males maintain mutually exclusive ranges, but share these with individual subordinate males. Female home ranges overlap widely. Set interaction patterns between males preserve the spatial dominance relationship without driving another male from the territory. Dominance is revealed when other males do not contest rights to an estrus female. Food resources are readily shared, and the system does not regulate population increase. Rather, it serves to organize competition for reproductive opportunity among males, selecting out prime males without hampering their efficiency. These conclusions give insight into social patterns in other species.

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D. G. KLEIMAN and L. R. COLLINS, National Zoological Park

Preliminary observations on scent-marking, social behavior, and play in the juvenile giant panda, *Ailuropoda melanoleuca*. (Introduced by J. F. Eisenberg) (Motion picture)

The scent marking, social behavior, and play of two immature giant pandas have been observed for 8 months in the National Zoological Park. The female scent-marks with a lateral or circular anogenital rub either by squatting over an object or by standing quadrupedally with the mark directed backward against a vertical surface. She urinates while lying on the venter with the tail raised. The male also uses the lateral anogenital rub, but may also display a forward-back rubbing movement after urinating with his leg cocked. The male also urinates against a wall using a handstand posture (reversed upright). Since his arrival at 6 months of age, the male has altered the relative frequency of usage of the different postures, suggesting that several ontogenetic phases may precede the development of adult marking patterns. Although no such change has been seen

in the female, she was already 12 months old at arrival. In both animals, urine or glandular secretions may be applied to the body by rubbing the back on an already marked surface. Small objects or odoriferous substances (e.g., grass, food, ice, soil) are often held in the forepaws and rubbed on the ventral surface. Behavior observed during solitary play and social interactions (with a fence separating the pair) is similar, consisting mainly of partial and completed somersaults, lateral rolls on the ground, body twisting, and rapid withdrawals and approaches. The female occasionally produces the "bleat" vocalization during social interactions. (The giant pandas were a gift to the United States from the People's Republic of China.)

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N. E. COLLIAS and ELSIE C. COLLIAS, University of California at Los Angeles and Los Angeles County Museum of Natural History

Evolution of nests in the weaverbirds (Ploceidae) (Motion picture)

This film made in Africa and Asia illustrates a family which builds the most interesting and spectacular variety of nests among birds, including the Sociable Weaver (*Philetairus socius*), the Red-billed Weaver (*Quelea quelea*), the Spotted-backed Weaver (*Ploceus cucullatus spilnotus*), Cassin's Weaver (*Malimbus cassini*) and many others. Some species apparently have been filmed for the first time. Important steps in evolution of avian nests are analyzed, including the roofed nest typical of many small tropical birds, the origin of the compound and communal nest, of the act of weaving and of an entrance and entrance tube that opens downward. The film is distributed by the International Media Library, University of California, Los Angeles, California 90024. (Supported by grant from NSF.)

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DAVID CREWS, Institute of Animal Behavior, Rutgers University

Social factors in the control of reptilian reproduction. (Introduced by Daniel S. Lehrman) (Motion Picture)

Reproductively inactive, winter dormant female *Anolis carolinensis* were exposed to a stimulatory photic-thermal-humidity regime either individually or in male-female isolated pairs, all female groups, intact male-female groups or castrated male-female groups. In other experiments, winter dormant males were exposed to varying amounts of male courtship and male-male aggression. Results indicate that 1) while an unseasonal environmental regime will stimulate out-of-season ovarian recrudescence (OR) in winter dormant females, the presence of an intact conspecific male will elicit a significantly more rapid rate of OR, and is necessary for normal gonadotrophin secretion; 2) the presence of a stable dominance hierarchy is necessary for this facilitation to occur (an unstable dominance hierarchy inhibits OR), and 3) the behaviors responsible for the facilitation are