



ETHOGRAM- Species: European red deer (*Cervus elaphus*)

Related species: American elk (*Cervus canadensis*)

Sources: Macdonald, D. 2001. Encyclopedia of Mammals. ; Clutton-Brock, T.H., Guinness, F.E. and Albon, S.D. 1982. Red Deer: Behavior and Ecology of Two Sexes. Univ. Chicago Press: Chicago. ; Walther, Fritz R. 1984. Communication and Expression in Hoofed Mammals. Indiana University Press: Bloomington.

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CATEGORY	Action Code	Snapshot	Video Clip	Name (events, STATES)	Description (pages in Clutton Brock et.al. 1982)
ALARM	A-bark1			bark	pg. 118; "A common technique by young stags was to run through the harem giving alarm barks and thus
ALARM	A-BARK2			BARKING	pg. 107, "A series of short barks typically directed at young stags after they have been chased away"
ALARM	A-VIGI			VIGILANT	pg. 65 "Individuals alerted (raised the head and gazed
CARE	C-CLEA	Fig. 4.8		CLEANING	pg. 63 "Immediately after the birth the mother licks the calf clean, then eats the membranes, licking up
CARE	C-NURS	Fig. 4.9		NURSING	pg. 63 "A hind suckles her week-old calf. The mother is licking beneath the tail to stimulate the calf to defecate"
CARE	C-SUCK	Fig. 4.9		SUCKLING BOUT	pg. 62 "Calves are usually able to stand within half an hour of birth, and the first suckling about typically
INGEST	I-GRAZ			GRAZING	pg. 48 "When an animal either was actively biting or was chewing recently ingested food in a standing
INGEST	I-graz			graze-start	Deer starts to bite grass or other broad-leafed plants growing on the ground
INGEST	I-other			ingest-other	Deer starts to bite a food item other than grass or shrubs, such as food pellet or hay
INGEST	I-RUM			RUMINATING	pg. 48 "When an animal was either chewing or in the process of passing a bolus up to the buccal cavity."
INGEST	I-brow			browse-start	Deer starts to bite leaves or twigs from bushes, shrubs
LOCOMOTE	L-LEAV	Fig. 6.17		LEAVING	Deer walks/runs away from other deer, e.g. a male leaving females to chase an intruder, or drive a
LOCOMOTE	L-MOVI			MOVING	pg. 48 "When an animal was actively locomoting at end of the 1-min period"..
MAINTAIN	M-INACT1	Fig. 6.8		INACTIVE-LYING	pg. 48 [When an animal was not engaged in any of the previous activities and was] "As [inactive, standing] but
MAINTAIN	M-INACT2			INACTIVE-STANDING	pg. 48 "When an animal was not engaged in any of the previous activities and was standing"
REPRODUCE	A-chiv	Fig. 6.10		CHIVYING	pg. 112 "Stags frequently chase hinds over short distances within their harems (fig. 6.10). During these
REPRODUCE	R-BELL			bellow	pg. 62 "During the days before and after parturition, hinds sometimes bellow, raising their noses
REPRODUCE	R-BIRTH	Fig. 4.8		BIRTHING	pg. 63 "During labor, which usually lasts 30-120 min...the hind becomes more and more restless,
REPRODUCE	R-dism			dismount	End of a mounting bout when the male slides off the rump of the female, and the front feet contact the
REPRODUCE	R-ejac	Fig. 6.12		ejaculate	pg. 112 "Ejaculation can be easily identified by a sudden thrust that jerks the stag's body upright, often
REPRODUCE	R-ESTR	Fig. 4.5		ESTROUS	pg. 57 "An estrous hind stands with back slight arched, allowing the stag to press his chin on her back (a) and

REPRODUCE	R-extr			extract/abduct	pg. 118 "young stags manage to extract hinds ...when the stag was absent" pg. 119 "Most stags over eleven
REPRODUCE	R-fleh	Fig. 6.7		flehman	pg. 110 "After sniffing a hind or the place where a hind has urinated, stags sometimes show flehmen, raising
REPRODUCE	R-HARE	Fig. 6.2		HAREM HOLDING	pg.107 "As mature stags spend more of their time associating with hind groups, they move less and less, remaining with their harems in one particular area of
REPRODUCE	R-HERD	Fig. 6.9		HERDING/DRIVING	pg 110. "Stags often head off hinds that are attempting to leave their harems by walking outside them, head
REPRODUCE	R-MOUNT	Fig. 4.5		MOUNTING	pg. 112 "Only hinds in estrus allow the stag to mount. Mating sequences usually involve several mountings
REPRODUCE	R-ROAR	Fig. 6.2		ROARING/BUGLING	pg. 107 "A deep guttural roar (see Clutton-Brock and Albon 1979). Roars are aggregated into bouts of one to
REPRODUCE	R-roar	Fig. 6.3		roar-start	With chin stretched forward and mouth slightly open, the deer exhales, producing a modulated low-frequency
REPRODUCE	R-RUTT			RUTTING	pg.48 "Included roaring, herding, chasing,or fighting"; pg. 117
REPRODUCE	R-SNIF	Fig. 6.8		SNIFFING & LICKING	pg. 110 "Stags frequently approach lying hinds and lick the back of their heads and necks, gradually working
REPRODUCE	R-WALL	Fig. 6.6		WALLOWING	pg. 110 "The stag wallows in a pool or peat bog, often also urinating into it and wiping his antorbial glands and
REPRODUCE	R-WIPI	Fig. 6.5		WIPING (MARKING)	pg. 107 "Harem-holding stags commonly rub their chins, antler pedicles, or preorbital gland on
SOCIAL	S-APPR			APPROACHING	pg. 113 (also 129, 203) "Where one stag moves within 100 m of another"
SOCIAL	S-CHASE	Fig. 6.17		CHASING	pg. 117 "Stags chase yearlings or young stags away from their harems by running directly at them, often
SOCIAL	S-DISP			DISPLACING	pg. 113 "Stags displace young stages or rivals that approach their harems by walking steadily toward them.
SOCIAL	S-FIGHT	Fig. 6.15		FIGHTING	pg. 113 "The two stags lock their antlers and push to and fro, occasionally disengaging, until one individual is driven rapidly backwards"
SOCIAL	S-init	Fig. 6.14		initiate	pg. 113 "One stag lowers his antlers, inviting contact."
SOCIAL	S-kick			kick-scissor	pg.117 "Stags often end a chase with a scissors kick of the forelegs"
SOCIAL	S-leap	Fig. 6.16		leap forward	pg.116 "A stag leaps up and forward in an attempt to dislodge his opponent"
SOCIAL	S-PARA	Fig. 6.13		PARALLEL WALK	pg. 113 "After one stag has approached another, the pair may move into a tense walk in which they move parallel to each other, typically 5-20 m apart"
SOCIAL	S-SPAR			SPARRING	pg. 46 "When two stags locked antlers and twisted and turned their heads. Stags seldom pushed hard during
SOCIAL	S-THRA	Fig. 6.4		THRASHING	pg. 107 "The stag rakes the ground and vegetation with his antlers, often spraying the area he is thrashing with