

THE BIOLOGY AND MANAGEMENT OF WILD RUMINANTS

CHAPTER TWENTY-ONE

MANAGEMENT OF WILD RUMINANT HABITATS

by

Aaron N. Moen

Professor of Wildlife Ecology

Department of Natural Resources

College of Agriculture and Life Sciences

Cornell University

Ithaca, N.Y. 14853

and

Certified Wildlife Biologist

(The Wildlife Society)

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CONTENTS OF CHAPTER TWENTY-ONE

MANAGEMENT OF WILD RUMINANT HABITATS

TOPIC 1. POLITICALLY-DEFINED AREAS	7
UNIT 1.1: STATES AND PROVINCES	7
REFERENCES	11
UNIT 1.2: COUNTRIES	15
REFERENCES	15
TOPIC 2. HABITAT MANAGEMENT AREAS	19
UNIT 2.1: WILDLIFE MANAGEMENT AREAS	19
REFERENCES	21
UNIT 2.2: WILDLIFE REFUGES AND PRESERVES	23
REFERENCES	25
UNIT 2.3: WILDERNESS AREAS	29
REFERENCES	31
UNIT 2.4: PARKS, NATIONAL MONUMENTS, AND RECREATION AREAS	33
REFERENCES	35
UNIT 2.5: NATIONAL FORESTS	39
REFERENCES	39
TOPIC 3. HABITAT MANAGEMENT PRACTICES	43
UNIT 3.1: MECHANICAL PRACTICES	43
REFERENCES	45
UNIT 3.2: FIRE	47
REFERENCES	49
UNIT 3.3: CHEMICAL PRACTICES	53
REFERENCES	55
UNIT 3.4: LIMITATIONS ON GRAZING AND BROWSING	59
REFERENCES	59
UNIT 3.5: FOOD PRODUCTION AND WATERING AREAS	65
REFERENCES	67
UNIT 3.6: SUPPLEMENTAL FEEDING	71
REFERENCES	73
TOPIC 4. COMMERCIAL PRIORITIES	75
UNIT 4.1: AGRICULTURE	75
REFERENCES	77
UNIT 4.2: FORESTRY	81
REFERENCES	81
CLOSING COMMENTS	87
GLOSSARY OF SYMBOLS USED	89
GLOSSARY OF SERIAL CODENS	91

CONTENTS continued on the next page

LIST OF PUBLISHERS	95
GLOSSARY OF ANIMAL CODE NAMES	97
JULIAN DAY CALENDAR	99
LIST OF WORKSHEETS	101

CHAPTER 21. MANAGEMENT OF WILD RUMINANT HABITATS

Wildlife management has been, at times, considered a misnomer, or at least an inappropriate term in relation to what can be done by "wildlife managers." What can wildlife managers manage? Wildlife, wildlife habitats, and people. Wildlife may be the least manageable of the three, wildlife habitats next, and people the most manageable.

The first twenty CHAPTERS have emphasized the biological characteristics of wild ruminants and their habitats. While wild ruminants are not "managed" as domestic ruminants are, knowledge of their basic biological characteristics is essential before they, their habitats, or people who use the resource can be managed wisely. Thus the biological foundation was laid. And what happens if these three--wild ruminants, their habitats, and people--are managed wisely? If management results in increased production of habitat resources, the carrying capacity of an area has been increased.

The concept of carrying capacity was discussed in the INTRODUCTION to this entire 7-part series, PART I, and again in PART VI. Population dynamics and predictions of ruminant populations at different rates of growth were illustrated in CHAPTER 19. Calculations of carrying capacity were illustrated in CHAPTER 20. Evaluations of these calculations result in the inevitable conclusion that population requirements may exceed range resources available. Then, the number of animals must be reduced, range resources increased, or both. It is the second alternative--range resources increased--that is discussed in this CHAPTER 21.

Conditions change in both time and space. Since both population requirements and range resources are variable through the year and from year to year, simple alternatives to management problems seldom exist.

You have been introduced in the previous six PARTS to changes in animal characteristics, and now is the time to begin relating these basic biological characteristics to management problems. Electronic calculations have been emphasized. Calculators do not think, but they do make very rapid computations. You do the thinking about wild ruminants and their habitats, formulate the numerical expressions of the ecological relationships between the two, and let electronic computing equipment make the calculations with speed and accuracy.

The four TOPICS in this CHAPTER arranged in a sequence beginning with the most arbitrary areas on which management may be done (TOPIC 1. POLITICALLY-DEFINED AREAS), then more specific areas (TOPIC 2. HABITAT MANAGEMENT AREAS), followed by specific practices that may be used to manage habitat (TOPIC 3. HABITAT MANAGEMENT PRACTICES) and concluding with the most specific management of wildlife habitats, that of agriculture and forestry (TOPIC 4. COMMERCIAL PRIORITIES).

These TOPICS are chosen in part because of the way the literature on management may be identified. Titles of research papers describing management practices often refer to a state or province (TOPIC 1), or refuges,

preserves, parks, national forests . . . (Topic 2), specific management practices (TOPIC 3), and to the effects of agriculture and forestry on habitats (TOPIC 4). Many of the articles contain information on all of these TOPICS; it is best to look over the SERIAL lists after each UNIT when searching for literature on habitat management.

REFERENCES, CHAPTER 21

MANAGEMENT OF WILD RUMINANT HABITATS

BOOKS

TYPE	PUBL	CITY	PGES	ANIM	KEY WORDS-----	AUTHORS/EDITORS--	YEAR
aubo	yaup	nhct	240	----	wildl cons, theory, practi	hornaday,wt	1914
aubo	gbri	nyny	292	----	thirty years war for wldlf	hornaday,wt	1931
aubo	cscs	nyny	481	----	game management	leopold,a	1933
aubo	cnpc	apwi	208	----	conserv, renewable resourc	dahlberg,em	1939
edbo	cscs	nyny	365	----	the way of game abundance	grange,wb	1949
aubo	jwis	nyny	570	----	rang man, principl, practi	sampson,aw	1952
aubo	mhbc	nyny	433	----	range management	stoddart,la; smit	1955
aubo	jwis	nyny	558	----	time, life and man	striton,ra	1959
aubo	stac	hapa	377	----	crusade for wildlife	trefethen,jb	1961
aubo	mhbc	nyny	466	----	biol control systems analy	milsum,jh	1966
edbo	acpr	nyny	276	----	systems analysis in ecolog	watt,kef	1966
aubo	mhbc	nyny	450	----	ecol, resour man: quant ap	watt,kef	1968
aubo	dnhp	nyny	197	----	design with nature	mcharg,il	1969
aubo	wiin	nyny	286	----	intro mathematical ecology	pielou,ec	1969
edbo	acpr	nyny	383	----	ecosystem concept, n r man	van dyne,gm	1969
edbo	acpr	nyny	259	----	ecosys concept, fish, game	van dyne,gm	1969
edbo	acpr	nyny	610	----	systems anal, simula, ecol	patten,bc	1971
aubo	wiso	wadc	320	----	nat res & pub rela, 2nd ed	gilbert,dl	1975
aubo	winp	nyny	409	----	an amer cruside for wildlf	trefethen,jb	1975
aubo	fost	nyny	426	cerv	antelope, deer, north amer	caton,jd	1877
aubo	macm	nyny	232	od--	hunting north american dee	carhart,ah	1946
edbo	stac	hapa	668	od--	deer of north america	taylor,wp	1956
aubo	stac	hapa	128	od--	if deer are to survive	dasmann,w	1971
aubo	vipr	nyny	194	od--	deer of the world	whitehead,gk	1972
edbo	nhfg	conh	256	odvi	the white-t deer, n hampsh	siegler,hr	1968
aubo	ucap	beca	567	odhe	a herd of mule deer	linsdale,jm; tomi	1953
edbo	unbp	line	605	odhe	mule, black-t deer, n amer	wallmo,oc	1981
aubo	oxup	loen	215	ceel	herd, red dee, stud, behav	darling,ff	1937
aubo	cite	oxen	74	ceel	ecology of red deer	mitchell,b; stai/	1977
edbo	wiml	wadc	ceel	ecology and management	thomas,jw; towel in pr	
aubo	uwyf	lawy	294	ceel	n amer elk: ecol,behav,mgt	boyce,ms; hayden-	1979
aubo	utop	toon	280	alal	north american moose	peterston,rl	1955

TYPE	PUBL	CITY	PGES	ANIM	KEY WORDS-----	AUTHORS/EDITORS--	YEAR
aubo	stac	hapa	238	anam	prngrn antlp & its mngmnt	einarsen,as	1948
aubo	utop	toon	991	bibi	n amer buffalo, wild state	roe,fg	1970
aubo	aakn	nyny	339	bibi	the time of the buffalo	mchugh,t	1972
aubo	uopr	nook	247	ov--	the great ark of the wild	clark,jl	1964
aubo	qupr	oton	166	obmo	muskoxen,biol,taxon,canada	tener,js	1965
aubo	mhbc	nyny	479	wldl	v.I, wildlife management	trippensee,re	1948

SERIALS

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
MDCBA	5----	1	64	odvi	w-tailed deer of minnesota	erickson,ab; gunv	1961
MDCRA	14---	1	80	odvi	michigan white-tailed deer	jenkins,dh; bartl	1959
RWLBA	6---2	153	325	odvi	w-t deer of the adirondcks	townsend,mt; smit	933
RWLBA	6---2	327	385	odvi	wntr, spr obsrv, adirndcks	spiker,cj	1933
WCDBA	14---	1	282	odvi	white-tailed deer, wiscons	dahlberg,bl; guet	1956

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
AZWBA	3----	1	109	odhe	in arizona chaparral	swank,wg	1958
CAFGA	26--2	139	166	odhe	calif deer, rcky mt mule d	mclean,dd	1940
CFGGA	8----	1	163	odhe	life hist, managemt, calif	taber,rd; dasmann	1958
CGFPA	4----	1	39	odhe	lit review, mvmnts & captr	siglin,rj	1965

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
UCPZA	88---	1	209	ceel	tule elk: hist, behav, eco	mccullough,dr	1969
WLMOA	16---	1	49	ceel	status, ecol, roosevel elk	harper,ja; harn/	1967
WLMOA	24---	1	66	ceel	the sun river elk herd	knight,rr	1970

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
AMNAA	52--2	392	399	alal	observ in yellowstone park	mcmillan,jf	1954
FUNAA	8....	40	43	alal	moose habits and habitat	rush,wm	1946
MUZPA	25---	1	44	alal	the moose of isle royale	murie,a	1934
NCANA	101--	1	436	alal	ecol, proc inter sym, pt 1	bedard,j	1974
NCANA	101--	437	735	alal	ecol, proc inter sym, pt 2	bedard,j	1974

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
BPURD	2----	1	215	rata	ecol, caribou, prudhoe bay	white,rg; thomso/	1975
CWRSB	38---	1	71	rata	biology, kaminuriak popula	dauphine,tc,jr	1976
UABPA	8----	1	82	rata	ecology, managment, sweden	skunke,f	1969
WMBAA	10A--	1	79	rata	prelim investigation, pt 1	banfield,awf	1954
WMBAA	10B--	1	112	rata	prelim investigation, pt 2	banfield,awf	1954
WMBAA	12---	1	148	rata	caribou, continued studies	kelsall,jp	1957
WMBAA	15---	1	145	rata	barrn gr carib, coop study	kelsall,jp	1960

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
AMNAA	43--2	257	354	anam	life hist, ecol, rng use, tex	buechner,hk	1947
CAFGA	30--4	221	241	anam	prong-hornd antlp in calif	mclean,dd	1944
JOMAA	3----	82	105	anam	the prong-horn	skinner,mp	1922

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
NPSMD	161--	1	161	bibi	bison, yellowston nat park	meagher,mm	1973

CODEN	VO-NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
AMNAA	24--3	505	580	ov--	distribut, variat, no amer	cowan,imct	1940
AZWBA	1----	1	153	ov--	desert bighorn	russo,jp	1956
WLMOA	4----	1	174	ov--	united sta, past to future	buechner,hk	1960

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
AMNAA	56--2	297	324	ovca	ecology of mountain sheep	mccann,lj	1956
IGWBA	1----	1	154	ovca	stat, life hist, mgt, idah	smith,dr	1954
JOMAA	18--2	205	212	ovca	prelim study, yllwstn n pk	mills,hb	1937
JOMAA	20--4	440	455	ovca	bighorn sheep of texas	davis,wb; taylor,	1939
JOMAA	24--1	1	11	ovca	notes on life histor, colo	spencer,cc	1943

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
SCBUB	35--6	29	76	ovca	survey, sierra nevada high	jones,fl	1950
WGFBA	1----	1	127	ovca	wyoming bighorn study	honest,rf; frost,	1942
WLMOA	4----	1	174	ovca	bighorn sheep in the u s	buechner,hk	1960
XNFSA	6----	1	242	ovca	bighorn of death valley	welles,re; welles	1961

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
				ovda			

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
WMBAA	9----	1	34	obmo	prelim stud,ellesmr is,nwt	tener,js	1954

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
CAFNA	81--1	1	22	oram	obsrvtns,kootenay nt pk,bc	holroyd,jc	1967
CGFPA	8----	1	23	oram	literature review, ecology	hibbs,ld	1966
IGWBA	2----	1	142	oram	life history, mgtmt, idaho	brandborg,sm	1955

CODEN	VO--NU	BEP	ENPA	ANIM	KEY WORDS-----	AUTHORS-----	YEAR
JTBIA	2---1	63	68	----	environments of anim, plan	browning,to	1962

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Proceedings of the White-tailed Deer in the Southern Forest Habitat Symposium (First meeting in 1962)

Transactions of the Annual Meeting of the Northeast Deer Study Group (Annual meeting beginning 1964)

Proceedings of the North American Moose Conference (Fifth conference in 1968)

Proceedings of the International Reindeer/Caribou Symposium (First meeting in 1977, second in 1980)

Proceedings of the Biennial Antelope States Workshop

Transactions of the Interstate Antelope Conference

Transactions of the North American Wild Sheep Conference (Second meeting in 1976)

Transactions of the Desert Bighorn Council (Annual meeting beginning 1957)

Proceedings of the International Mountain Goat Symposium

Proceedings of the Annual Conference of Western Association of State Game & Fish Commissioners (Annual conference beginning 1921)