

Arnoldus Schytte Blix

Arctic Animals

and their Adaptations to Life on the Edge

 **tapir academic press**

Table of Contents



Chapter 1 The Arctic Region	11
Chapter 2 The Late Cenozoic Glaciations	35
Chapter 3 Marine Invertebrates and Fish	39
The Arctic Ocean	43
The arctic shelf seas	43
The Barents Sea	44
The Kara Sea	55
The Laptev and East Siberian Seas	57
The Chukchi Sea	58
The Bering Sea	59
The Beaufort Sea and the Canadian Arctic Oceans	65
Chapter 4 Marine Mammals	69
Arctic seals	70
Spotted seal (<i>Phoca largha</i>)	70
Ringed seal (<i>Phoca hispida</i>)	72
Ribbon seal (<i>Phoca fasciata</i>)	74
Bearded seal (<i>Erignathus barbatus</i>)	76
Hooded seal (<i>Cystophora cristata</i>)	79

TABLE OF CONTENTS

Harp seal (<i>Phagophilus groenlandicus</i>)	84
Walrus (<i>Odobenus rosmarus</i>)	90
Arctic whales	95
Beluga (<i>Delphinapterus leucas</i>)	95
Narwhal (<i>Monodon monoceros</i>)	98
Bowhead whale (<i>Balaena mysticetus</i>)	102
Stellers sea cow (<i>Hydrodamalis gigas</i>)	107
Chapter 5 Land Invertebrates	109
Chapter 6 Fresh Water Communities	115
Still water/lakes and ponds	115
Running water	118
Chapter 7 Amphibia and Reptiles	119
Chapter 8 Terrestrial Birds and Mammals	121
Resident birds	121
Snowy owl (<i>Nyctea scandiaca</i>)	122
Arctic redpoll (<i>Carduelis hornemanni</i>)	125
Raven (<i>Corvus corax</i>)	127
Rock ptarmigan (<i>Lagopus mutus</i>)	128
Resident mammals	133
Muskox (<i>Ovibos moschatus</i>)	133
Reindeer (<i>Rangifer tarandus</i>)	138
Arctic fox (<i>Alopex lagopus</i>)	147
Lemmings	151
Arctic wolf (<i>Canis lupus arctos</i>)	156
Arctic hare (<i>Lepus arcticus</i>)	158
Ermine (<i>Mustela erminea</i>)	160
Polar bear (<i>Ursus maritimus</i>)	163
Chapter 9 Summer Migrants to the Arctic	169
Birds	169
Seabirds that nest in arctic colonies	174

Mammals	178
Grey whale (<i>Eschrichtius robustus</i>)	178
Minke whale (<i>Balaenoptera acutorostrata</i>)	180
Northern fur seal (<i>Callorhinus ursinus</i>)	183
Steller sea lion (<i>Eumetopias jubatus</i>)	185
Chapter 10 Physiological Adaptations	187
Acclimation and adaptation	187
Organisms at low temperatures	188
Cold defence in poikilothermic arctic animals	189
Freeze avoidance	190
Freeze tolerance	194
Cold defence in homeothermic arctic animals	195
Birth in the arctic – a chilling experience	218
Altricial mammals	218
Altricial birds	221
Precocious birds	222
Precocious mammals	224
Food and digestion	232
Energy balance and growth	242
Starvation and hibernation	250
Adaptations to diving	257
Light	262
References	273
Further Reading	285
Appendix An Outline Classification of Animals	287
Index	291