

**NON-NATIVE AND INVASIVE ANIMALS OF  
ALASKA:  
A COMPREHENSIVE LIST AND SELECT  
SPECIES STATUS REPORTS**

**FINAL REPORT**

Jodi McClory  
Tracey Gotthardt



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A COMPREHENSIVE LIST AND SELECT SPECIES  
STATUS REPORTS**

**FINAL REPORT**

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## TABLE OF CONTENTS

**EXECUTIVE SUMMARY 4**

**INTRODUCTION 5**

**METHODOLOGY 5**

**RESULTS 6**

**DISCUSSION AND FUTURE DIRECTION 6**

**ACKNOWLEDGEMENTS 7**

**LITERATURE CITED 8**

### **APPENDICES**

**I: LIST OF NON-NATIVE ANIMAL SPECIES DOCUMENTED IN ALASKA 9**

**II: LIST OF NON-NATIVE ANIMAL SPECIES WITH THE POTENTIAL FOR INVASION IN ALASKA 17**

**III: STATUS REPORTS FOR SELECT NON-NATIVE ANIMAL SPECIES OF ALASKA 21**

<b>PACIFIC CHORUS FROG</b> .....	22
<b>RED-LEGGED FROG</b> .....	24
<b>ATLANTIC SALMON</b> .....	27
<b>NORTHERN PIKE</b> .....	30
<b>AMBER-MARKED BIRCH LEAFMINER</b> .....	33
<b>BIRCH LEAFMINER</b> .....	35
<b>CHINESE MITTEN CRAB</b> .....	37
<b>FOREST TENT CATERPILLAR</b> .....	39
<b>GYPSY MOTH</b> .....	41
<b>LARCH SAWFLY</b> .....	43
<b>NEW ZEALAND MUDSNAIL</b> .....	45
<b>SIGNAL CRAYFISH</b> .....	48
<b>WESTERN TENT CATERPILLAR</b> .....	51
<b>BROWN RAT</b> .....	54
<b>ELK</b> .....	57
<b>ROOF RAT</b> .....	60
<b>WHIRLING DISEASE PARASITE</b> .....	63

## **EXECUTIVE SUMMARY**

In recent years, a number of non-native animal species have been observed in Alaska, some of which have proven to be invasive. Since animal introductions to the state are still limited in distribution, and because protecting land not yet infested by non-natives is an efficient technique for the management of invasive species, we have the opportunity to preserve Alaska's immense natural resources with careful management of invasive animal threats. However, before management efforts towards invasive species can be successful, information must be gathered to identify which non-native animal species are present in the state, where they occur, and which species pose the greatest risk to native ecosystems. In an effort to provide managers with the most up-to-date information regarding invasive animal species in Alaska, we compiled a comprehensive list of non-native animals that have been documented in the state, and also developed a list of potential future invaders based on their occurrence in neighboring states and/or provinces. We collected published and unpublished information on a number of non-native animal species that are known to pose a high risk to native ecosystems, and summarized information on their biology, modes of dispersal, documented impacts, control options, and current and historic distribution.

A total of 116 non-native animal species (including fishes, amphibians, reptiles, birds, mammals, invertebrates, parasites and pathogens) were documented as present (either historically or currently) in the state, of which 20 were designated as highly invasive species. Status reports describing biology and invasive potential were developed for 14 of the highly invasive species and are included as an appendix to this report, along with maps of their known current distribution in the state. An additional 41 species were identified as potential invaders based on their rapid spread in western North America and on their ability to disperse over large distances. Ten of the 41 potential invaders were identified as being highly invasive, and status reports were developed for 3 of those species.

The development of the first comprehensive list of non-native animals in Alaska summarizes necessary and preliminary information about the current status of these animals in the state. Information contained within the individual species status reports and associated distribution maps may be used to interpret a species' ability to spread into particular regions, and could be used in future mapping efforts to calculate rates of dispersal as well as enable prediction of future range expansions. As global climate change continues to warm the landscape, Alaska may become more susceptible to harmful invaders and the information compiled within this report could be useful in predicting and preventing animal invasions.

## INTRODUCTION

Invasive species are defined in federal law as species that are both non-native (alien) to a particular ecosystem and whose introduction causes or is likely to cause economic or environmental harm, or harm to human health (Executive Order 13112 1999). In recent years, a number of non-native animal species have been observed in Alaska, some of which have proven to be invasive. Invasive species threaten native ecosystem integrity and Alaska's valuable resources in fisheries, tourism, forestry, and agriculture by the alteration and loss of natural species biodiversity and ecosystem functions. Alaska's low population and relative geographic isolation have kept introductions of new invasive species comparatively low, but increased commercial traffic, development, and changes wrought by climate change all potentially increase the risk of new introductions to the state. Since many animal introductions to the state are still limited in distribution, and because protecting land not yet infested by non-natives is an efficient technique for the management of invasive species, we have the opportunity to preserve Alaska's valuable natural resources with careful management of invasive animal threats.

Before successful management efforts towards invasive species can be implemented, information must be gathered to identify which non-native animal species are present in the state, where they occur, and which species pose the greatest risk to native ecosystems. In an effort to provide managers with the most up-to-date information regarding invasive animal species in Alaska, we compiled a comprehensive list of non-native animals that have been documented in the state, and also developed a list of potential future invaders based on their occurrence in neighboring states and/or provinces. We collected published and unpublished information on a number of non-native animal species that pose a high risk to native ecosystems, and summarized information on their biology, modes of dispersal, documented impacts, control options, and current and historic distribution.

Specific project objectives were to:

- (1) Conduct a comprehensive literature review and consult with area biologists to compile a draft list of non-native animal species previously documented in Alaska. Compile a list of potential invaders to include species that have been documented in neighboring states and provinces.
- (2) Through literature review and expert consultation, identify which species are accidentals and unlikely invaders in Alaska and remove these species from the list, or identify them as such.
- (3) Research and synthesize information on the biology, modes of dispersal, documented impacts, and control options of listed species to identify those capable of causing the greatest impacts.

## METHODOLOGY

*Objective 1:* To develop a comprehensive list of non-native animal species in the state, we reviewed published and unpublished information available in peer-reviewed and gray literature, museum specimen collection databases, wildlife and invasive species program websites, news reports, and personal communications with Alaska biologists and invasive

species experts for fishes, amphibians, reptiles, birds, mammals, invertebrates, parasites and pathogens. Data were compiled into two lists: 1) a preliminary list of non-native animals documented in the state (either currently or historically) and 2) a list of invasive species that have been detected in adjacent states and provinces which have the potential to spread and establish in Alaska. For animals present in Alaska, we included information about the species' status (e.g., cryptogenic, reported but not yet confirmed in the state, documented but eradicated, native but translocated). Draft lists were reviewed by local biologists and invasive species experts, and updated throughout the process of literature review and information synthesis.

*Objective 2:* We refined the list of non-native animal species present in Alaska by identifying those species already recognized as invasive in existing literature, reports or by experts in the state. Based on evidence in the literature, we identified a number of non-native species known to pose a high risk to native biodiversity. These "high risk" species were selected for in-depth research into their biology, ecology and possible impacts to native systems. It would require a systematic ranking scheme in order to objectively identify the highest risk species. Unfortunately, a ranking exercise was beyond the scope of this project. Instead, we selected "high-risk" species based on their widespread recognition as invasive species in the literature.

*Objective 3:* For select "high-risk" animal species, we summarized available information relating to the taxonomy, reproduction, feeding, habitat needs, dispersal potential, current/historic distribution, documented impacts, and control options. Maps of species' Alaskan range and/or distribution were developed using ArcGIS software.

## **RESULTS**

The final list of non-native animal species in Alaska included 116 species documented (either historically or currently) in the state (including amphibians [3], birds [16], fishes [14], invertebrates [42], mammals [35], parasites [1], pathogens [4], and reptiles [1]; see Appendix I). An additional 41 species were identified as potential invaders based on their proximity in adjacent states and provinces and on their ability to disperse over large distances (amphibians [1], birds [1], invertebrates [37], and pathogens [2]; see Appendix II). Of those found in the state, 21 were highlighted as "high-risk" for invasiveness. Of those not yet found in the state, 10 were highlighted as "high-risk" for invasiveness. Status reports were developed for 17 species (2 amphibians, 10 invertebrates, 2 fishes and 3 mammals) and are included as Appendix III in this report.

## **DISCUSSION AND FUTURE DIRECTION**

The majority of species listed as non-native in Alaska are not considered invasive by the formal definition. An exploration of the factors contributing to a species' invasiveness, and a systematic effort to rank species according to objective criteria would be constructive and has yet to be conducted for animals in the state. The need to evaluate and rank non-native species is a prerequisite before expensive management is attempted, so that the most threatening species are addressed first. A ranking system can help set

priorities for research and control efforts for invading bird, mammal, fish, invertebrate, and pathogenic species. Since many of the species on the Alaska non-native animal list have been documented during the last 20 years (this may be due to increased number of invasions or increased reporting and research on invasive species), there is a consensus in the invasive species community that a prioritization scheme is an important first step. Biological and ecological data summarized during this project will provide a valuable reference for future ranking efforts. These data also provide basic geographic information that could form the groundwork for development of a GIS database of non-native animal species distribution.

The development of the first comprehensive list of non-native animals in Alaska, presented here, summarizes necessary and preliminary information about the current status of these animals in the state. By making this information available to researchers and the general public, we hope it will be used to identify data gaps in our understanding and help direct targeted research. We also hope that it will serve to increase public awareness of the negative impacts of invasive species, which in turn, could help prevent their future spread. Questions that need to be addressed in the future include: Which species or groups of animals have the most invasive potential, and which have already caused the most damage to native ecosystems in the state? How can we target entire groups or dispersal pathways for prevention of non-native animal introductions? Where would financial resources prove most effective in the fight against invasions, and are there invasive populations that are already beyond our control? Information contained within the individual species status reports and associated distribution maps may be used to interpret an invasive species' ability to spread into particular regions, and could be used in future mapping efforts to calculate rates of dispersal as well as enable prediction of future range expansions (Riccardi et al. 2000). As global climate change continues to warm the landscape, Alaska may become more susceptible to harmful invaders (Union of Concerned Scientists 2005) and the information contained within this report could be useful in predicting and preventing animal invasions.

## **ACKNOWLEDGEMENTS**

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## **APPENDIX I**

*List of non-native animal species documented in Alaska*

**Appendix 1, page 1.** List of non-native animal species documented in Alaska. List includes amphibians, birds, invertebrates, mammals, pathogens and reptiles. List also include information on species status (when available), whether or not a status report was developed for that species, references, and an invasiveness rank as reported in the literature.

Class	Species Name	Common Name	Status	Report	References	Invasiveness Rank
Amphibians	<i>Pseudacris regilla</i>	Pacific chorus frog		X	Schrader and Hennon 2005, USGS 2007, MacDonald 2003, Hodge 2004	Low*
Amphibians	<i>Rana aurora</i>	Red-legged frog		X	Schrader and Hennon 2005	High*
Amphibians	<i>Taricha granulosa</i>	Roughskin newt	native but moved		USGS 2007	
Birds	<i>Strix varia</i>	Barred Owl			Rapp pers. comm.	
Birds	<i>Colinus virginianus</i>	Bobwhite Quail, Northern Bobwhite			Sinnott pers. comm.	
Birds	<i>Molothrus ater</i>	Brown-headed Cowbird			Armstrong 1995, USFWS 2007b	
Birds	<i>Alectoris chukar</i>	Chukar			Burris and McKnight 1973	
Birds	<i>Dendragapus obscurus</i>	Dusky Grouse, Blue Grouse	native but moved		Burris and McKnight 1973	
Birds	<i>Sireptopelia decaocto</i>	Eurasian Collared Dove			Rapp pers. comm.	
Birds	<i>Carpodacus mexicanus</i>	House Finch			Armstrong 1995, USFWS 2007b	
Birds	<i>Passer domesticus</i>	House Sparrow			Armstrong 1995, USFWS 2007b	
Birds	<i>Lophura leucomelanos, others</i>	Other pheasants (Mongolian, Nepal, Brown-eared, Kalij, Reeves, Cheer)			Burris and McKnight 1973	
Birds	<i>Phasianus colchicus</i>	Ring-necked Pheasant			Burris and McKnight 1973	
Birds	<i>Columba livia</i>	Rock dove, rock pigeon			Schrader and Hennon 2005, GISD 2007, UCS 2005	Low*
Birds	<i>Bonasa umbellus</i>	Ruffed Grouse	native but moved		Sinnott pers. comm.	
Birds	<i>Falciipennis canadensis</i>	Spruce Grouse	native but moved		Burris and McKnight 1973	
Birds	<i>Sturnus vulgaris</i>	Starling			Schrader and Hennon 2005	Low*, High^

**Appendix I, page 2.** List of non-native animal species documented in Alaska.

Group	Scientific Name	Common Name	Status	Status Legend	Reference	Importance Rating
Birds	<i>Branta canadensis fulva</i>	Vancouver Canada goose	native but moved		Sinnott pers. comm.	
Birds	<i>Meleagris gallopavo</i>	Wild Turkey			Sinnott pers. comm.	
Fishes	<i>Dallia pectoralis</i>	Alaska blackfish	native but moved		USGS 2007, UCS 2005	
Fishes	<i>Alosa sapidissima</i>	American shad			USGS 2007	
Fishes	<i>Thymallus arcticus</i>	Arctic grayling	native but moved		USGS 2007, UCS 2005	
Fishes	<i>Salmo salar</i>	Atlantic salmon		X	Fay 2002, UCS 2005, USGS 2007	High*
Fishes	<i>Salvelinus fontinalis</i>	Brook trout			Fay 2002, USGS 2007, UCS 2005	Low*
Fishes	<i>Oncorhynchus kisutch</i>	Coho salmon			USGS 2007	
Fishes	<i>Carassius auratus</i>	Goldfish			Fay 2002	Low*
Fishes	<i>Esox lucius</i>	Northern pike		X	Fay 2002, UCS 2005, USGS 2007	High*
Fishes		Ornamental aquarium fish			Fay 2002	
Fishes	<i>Astronotus ocellatus</i>	Oscars			Fay 2002	
Fishes	<i>Oncorhynchus mykiss</i>	Rainbow trout			Schrader and Hennon 2005, USGS 2007	Low*, High^
Fishes	<i>Gasterosteus aculeatus</i>	Threespine stickleback			USGS 2007	
Fishes	<i>Gambusia affinis</i>	Western mosquitofish	persistence questionable		USGS 2007	High^
Fishes	<i>Perca flavescens</i>	Yellow perch	eradicated		Fay 2002, USGS 2007, UCS 2005	High*
Invertebrates	<i>Eriocampa ovata</i>	Alder woolly sawfly			Schrader and Hennon 2005, USFS 2007	Low*
Invertebrates	<i>Profenusa thomsoni</i>	Amber-marked birch leafminer		X	Schrader and Hennon 2005, UCS 2005	High*
Invertebrates	<i>Distaplia alaskensis</i>	Ascidacean	cryptogenic species		Hines and Ruiz 2001	

**Appendix I, page 3.** List of non-native animal species documented in Alaska.

Group	Scientific Name	Common Name	Status	State	Source	Reference	Invasiveness Rank
Invertebrates	<i>Fenusa pusilla</i>	Birch leafminer			X	Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Epinoitia solandriana</i>	Birch leafroller				Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Heterarthrus nemoratus</i>	Birch-edge leafminer				Schrader and Hennon 2005	Low*
Invertebrates	<i>Cliona thosina</i>	Boring sponge in oyster shell	reported but not yet confirmed			Hines and Ruiz 2001	
Invertebrates	<i>Schizoporella unicornis</i>	Bryozoan				Hines and Ruiz 2001	
Invertebrates	<i>Heteromastus filiformis</i>	Capitellid worm				USGS 2007	
Invertebrates	<i>Crassostrea gigas</i>	Cultured oyster				Hines and Ruiz 2001 GISD 2007	
Invertebrates	<i>Nematus ribesii</i>	Curranworm				Schrader and Hennon 2005, UCS 2005	Low*
Invertebrates	<i>Adelges piceae</i>	Eastern spruce gall aphid				Schrader and Hennon 2005	Low*
Invertebrates	<i>Arion ater</i>	European black slug				Schrader and Hennon 2005, UCS 2005	Low*
Invertebrates	<i>Lymantria dispar</i>	European gypsy moth, Asian gypsy moth			X	Schrader and Hennon 2005, UCS 2005, USFS 2007	High*, High^
Invertebrates	<i>Rhyacionia buoliana</i>	European pine shoot moth				Schrader and Hennon 2005, Kruse pers. comm.	Low*
Invertebrates	<i>Noctua pronuba</i>	European Yellow Underwing Moth				USFS 2007	
Invertebrates	<i>Arion sp.</i>	Garden slug				Schrader and Hennon 2005	Low*
Invertebrates	<i>Tubularia crocea</i>	Hydroid	reported but not yet confirmed			USGS 2007	
Invertebrates	<i>Bougainvillia sp. 2</i>	Hydroid	cryptogenic species			Hines and Ruiz 2001	
Invertebrates	<i>Bougainvillia sp. 1</i>	Hydroid	cryptogenic species			Hines and Ruiz 2001	
Invertebrates	<i>Cuspidella grandis</i>	Hydroid	cryptogenic species			Hines and Ruiz 2001	
Invertebrates	<i>Garvia franciscana</i>	Hydroid				Hines and Ruiz 2001	
Invertebrates	<i>Opercularella lacerata</i>	Hydroid				Hines and Ruiz 2001	

**Appendix I, page 4. List of non-native animal species documented in Alaska.**

Phylum	Scientific Name	Common Name	Native	Status	Reference	Investigative Level
Invertebrates	<i>Proboscoidactila flavicirrata</i>	Hydroid			Hines and Ruiz 2001	
Invertebrates	<i>Venerupis philippinarum</i>	Japanese littleneck clam, Manila clam	reported but not yet confirmed		Hines and Ruiz 2001	
Invertebrates	<i>Pristiphora erichsonii</i>	Larch sawfly		X	Schrader and Hennon 2005, UCS 2005	High*
Invertebrates	<i>Limax maximus</i>	Leopard slug			Schrader and Hennon 2005	Low*
Invertebrates		Oysters			Fay 2002	
Invertebrates	<i>Polydora websteri</i>	Polychaete blister worm	reported but not yet confirmed		Hines and Ruiz 2001	
Invertebrates	<i>Procambarus clarkii</i>	Red swamp crayfish			USGS 2007	
Invertebrates	<i>Manayunkia speciosa</i>	Sabellid worm			USGS 2007	
Invertebrates	<i>Asterias amurensis</i>	Sea star	cryptogenic species		Hines and Ruiz 2001	
Invertebrates	<i>Pacifastacus leniusculus</i>	Signal crayfish		X	Fay 2002, GISD 2007, USGS 2007	High*
Invertebrates	<i>Schizoporella unicornis</i>	Single horn bryozoan			USGS 2007	
Invertebrates	<i>Pissodes strobi</i>	Sitka spruce weevil, white pine weevil			USFS 2007, Schrader and Hennon 2005, UCS 2005	Moderate*
Invertebrates	<i>Mya arenaria</i>	Soft-shelled clam			Hines and Ruiz 2001, USGS 2007, Powers et al. 2006	
Invertebrates	<i>Elatobium abietinum</i>	Spruce aphid			Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Ottiorhynchus ovatus</i>	Strawberry root weevil			Schrader and Hennon 2005, UCS 2005	Low*
Invertebrates	<i>Archips cerasivorana</i>	Uglynest caterpillar			USFS 2007, Schrader and Hennon 2005, UCS 2005	Low*
Invertebrates		Various ballast water species			Fay 2002	
Invertebrates	<i>Malacosoma californicum</i>	Western tent caterpillar		X	Schrader and Hennon 2005, UCS 2005, Kruse pers. comm.	High*
Invertebrates	<i>Pikonema alaskensis</i>	Yellow-headed Spruce Sawfly			USFS 2007	

**Appendix I, page 5.** List of non-native animal species documented in Alaska.

Species	Scientific Name	Common Name	Status	Notes	Reference	Prevalence
Mammals	<i>Martes americana</i>	American marten	native but moved		Schrader and Hennon 2005	
Mammals	<i>Alopex lagopus</i>	Arctic fox			USFWS 2007, Ebbert and Byrd (2002).	
Mammals	<i>Spermophilus paryii ablutus</i>	Arctic ground squirrel			USFWS 2007, Ebbert and Byrd (2002).	
Mammals	<i>Spermophilus paryii nebulicola</i>	Arctic ground squirrel			USFWS 2007, Ebbert and Byrd (2002).	
Mammals	<i>Rangifer tarandus groenlandicus</i>	Barren-ground caribou	native but moved		Burris and McKnight 1973	
Mammals	<i>Castor canadensis</i>	Beaver			Brown pers. comm.	
Mammals	<i>Bos bison</i>	Bison			Burris and McKnight 1973	
Mammals	<i>Rattus rattus</i>	Black rat, Roof rat		X	USFWS 2007	High^
Mammals	<i>Canis latrans</i>	Coyote			NatureServe 2007, Sinnott pers. comm.	
Mammals	<i>Ovis dalli</i>	Dall's sheep	native but moved		Burris and McKnight 1973	
Mammals	<i>Peromyscus maniculatus</i>	Deer mouse			USFWS 2007, Ebbert and Byrd 2007	
Mammals	<i>Felis catus</i>	Domestic cat			Sinnott pers. comm.	High^
Mammals	<i>Canis familiaris</i>	Domestic dog			Rapp pers. comm.	High^
Mammals	<i>Mustela putorius furo</i>	Domestic ferret			Sinnott pers. comm.	
Mammals	<i>Cervus canadensis</i>	Elk		X	Schrader and Hennon 2005	Moderate*, High^
Mammals OK	<i>Oryctolagus cuniculus</i>	European rabbit			Burris and McKnight 1973, Schrader and Hennon 2005, USFWS 2007	High^
Mammals	<i>Canis lupus</i>	Gray wolf	native but moved		Burris and McKnight 1973	
Mammals	<i>Mus musculus</i>	House mouse			Schrader and Hennon 2005, UCS 2005, USFWS 2007	Low*, High^
Mammals	<i>Marmota caligata</i>	Marmot	native but moved		Sinnott pers. comm.	

**Appendix I, page 6.** List of non-native animal species documented in Alaska.

Group	Scientific Name	Common Name	Status	Notes/Grades	References	Assessment
Mammals	<i>Neovison vison</i>	Mink (from domestic stock)	native but moved		Burris and McKnight 1973	
Mammals	<i>Alces americanus</i>	Moose	native but moved		Burris and McKnight 1973	
Mammals	<i>Oreamnos americanus</i>	Mountain goat			Brown pers. comm.	
Mammals	<i>Puma concolor</i>	Mountain lion	reported but not yet confirmed		Sinnott pers. comm.	
Mammals	<i>Ovibos moschatus</i>	Muskox			Burris and McKnight 1973	
Mammals	<i>Ondatra zibethicus</i>	Muskrat			Brown pers. comm.	
Mammals	<i>Rattus norvegicus</i>	Norway rat, Brown rat		X	Schrader and Hennon 2005, UCS 2005, USFWS 2007	High*
Mammals	<i>Procyon lotor</i>	Raccoon			Schrader and Hennon 2005	
Mammals	<i>Vulpes vulpes</i>	Red Fox			USFWS 2007	High^
Mammals	<i>Tamiasciurus hudsonicus</i>	Red squirrel	native but moved		Schrader and Hennon 2005	
Mammals	<i>Rangifer tarandus asiaticus</i>	Reindeer			USFWS 2007	
Mammals	<i>Bos taurus</i>	Scottish cattle				
Mammals	<i>Enhydra lutris</i>	Sea otter	native but moved		Burris and McKnight 1973	
Mammals	<i>Odocoileus hemionus</i>	Sitka black-tailed deer	native but moved		Schrader and Hennon 2005	
Mammals	<i>Lepus americanus</i>	Snowshoe hare	native but moved		Burris and McKnight 1973, Davis 1979, Schrader and Hennon 2005	
Mammals	<i>Sus scrofa</i>	Wild boar, feral swine, feral hogs				High^
Parasites	<i>Trichodectes canis</i>	Biting dog louse			Golden et al. 1999, Griese 1999, ADFG 2005, UCS 2005	
Pathogens	<i>Erwinia amylovora</i>	Bacterial fire blight				
Pathogens	<i>Apiosporina morbosa</i>	Black knot			Schrader and Hennon 2005	
					Schrader and Hennon 2005	

**Appendix I, page 7.** List of non-native animal species documented in Alaska.

Group	Scientific Name	Common Name	Status	Quota	Reference	Investment Year
Pathogens	<i>Myxobolus cerebralis</i>	Whirling disease parasite		X	WDI 2007, Arsan et al. 2007	
Pathogens	<i>Cronartium ribicola</i>	White pine blister rust			Schrader and Hennon 2005	
Reptiles	<i>Macrochelys temminckii</i>	Alligator snapping turtle			Associated Press 2002	

\* = Schrader  
and Hennon  
2005  
^ = GISD  
2007



## **APPENDIX II**

*List of non-native animal species with the potential for invasion in Alaska*

**Appendix II, page 1.** List of non-native animal species that have been not documented in Alaska, but have the potential to enter the state. List includes amphibians, birds, invertebrates and pathogens. List also include information on species status (when available), whether or not a status report was developed for that species, references, and an invasiveness rank as reported in the literature.

Phylum	Scientific Name	Common Name	Status	Reference	Invasiveness Rank
Amphibians	<i>Rana catesbeiana</i>	American bullfrog		Secord et al 2005	High ^
Birds	<i>Carpodacus mexicanus</i>	House Finch			
Invertebrates	<i>Anoplophora glabripennis</i>	Asian longhorned beetle		Schrader and Hennon 2005, UCS 2005	Moderate*
Invertebrates	<i>Urosalpinx cinerea</i>	Atlantic oyster drill		Secord et al 2005	
Invertebrates	<i>Crepidula fornicata</i>	Atlantic slipper snail		Secord et al 2005	
Invertebrates	<i>Cliona sp.</i>	Boring sponge		USGS 2007	
Invertebrates	<i>Tetropium fuscum</i>	Brown spruce longhorn beetle		Schrader and Hennon 2005	High*
Invertebrates	<i>Bugula neritina</i>	Bryozoan		GISD 2007	
Invertebrates	<i>Eriocheir sinensis</i>	Chinese mitten crab	X	Fay 2002	High*, High^
Invertebrates	<i>Botryllus schlosseri</i>	Colonial sea squirt		Secord et al 2005	
Invertebrates	<i>Didemnum lathillei</i>	Colonial sea squirt		Secord et al 2005	
Invertebrates	<i>Ilyanassa obsoleta</i>	Eastern mudsnail		Secord et al 2005	
Invertebrates	<i>Teredo navalis</i>	European (naval) shipworm		Secord et al 2005	
Invertebrates	<i>Hemichroa crocera</i>	European alder sawfly		Schrader and Hennon 2005	Low*
Invertebrates	<i>Ips typographus</i>	European spruce beetle		Schrader and Hennon 2005	High*
Invertebrates	<i>Malacosoma disstria</i>	Forest tent caterpillar	X	Schrader and Hennon 2005	High*
Invertebrates	<i>Carcinus maenas</i>	Green crab, European green crab		Fay 2002, UCS 2005, Aquatic Nuisance Species Project 2007	High^
Invertebrates	<i>Adelges tsugae</i>	Hemlock woolly adelgid		Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Diadumene lineata</i>	Japanese anemone		Secord et al 2005	
Invertebrates	<i>Musculista senhousia</i>	Japanese mussel		Secord et al 2005	
Invertebrates	<i>Ocenebrellus inornatus</i>	Japanese oyster drill		Secord et al 2005	
Invertebrates	<i>Coleophora laricella</i>	Larch casebearer		Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Ips cembrae</i>	Larch engraver		Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Venerupis philippinarum</i>	Manila clam		Secord et al 2005	
Invertebrates	<i>Mytilus galloprovincialis</i>	Mediterranean mussel		Secord et al 2005	

**Appendix II, page 2.** List of non-native species that have been not been positively identified in Alaska, but have been documented in adjacent states and provinces, and have the potential to invade.

Taxon	Scientific Name	Common Name	Status Report	Reference	Reported Invasiveness Rank
Invertebrates	<i>Batrillaria attramentaria</i>	Mudsnail		Secord et al 2005	
Invertebrates	<i>Potamopyrgus antipodarum</i>	New Zealand Mudsnail	X	Fay 2002, UCS 2005	High*
Invertebrates	<i>Lymnatria monacha</i>	Nun moth		Schrader and Hennon 2005	High*
Invertebrates	<i>Alitta succinea</i>	Pile worm		GISD 2007	
Invertebrates	<i>Dendrolimus pini</i>	Pine moth		Schrader and Hennon 2005	High*
Invertebrates	<i>Nuttallia obscurata</i>	Purple varnish clam		Secord et al 2005	
Invertebrates	<i>Clathria prolifera</i>	Red beard sponge		Secord et al 2005	
Invertebrates	<i>Lymnatria mathura</i>	Rosy gypsy moth		USFS 2007	
Invertebrates	<i>Botrylloides violaceus</i>	Sheath tunicate		USGS 2007	
Invertebrates	<i>Ciona savignyi</i>	Solitary sea squirt		Secord et al 2005	
Invertebrates	<i>Styela clava</i>	Solitary sea squirt		Secord et al 2005	
Invertebrates	<i>Bythotrephes cederstroemi</i>	Spiny water flea		Fay 2002, GLIN 2007	
Invertebrates	<i>Adelges abietis</i>	Woolly spruce aphid		Schrader and Hennon 2005	Moderate*
Invertebrates	<i>Dreissena polymorpha</i>	Zebra mussel		Fay 2002, UCS 2005	High^
Pathogens	<i>Chrysomyxa abietis</i>	Foliar spruce rust		Schrader and Hennon 2005	
Pathogens	<i>Bursaphelenchus xylophilus</i>	Pine wilt nematode		Schrader and Hennon 2005	Low*

\* = Schrader and  
Hennon 2005  
^ = GISD 2007

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