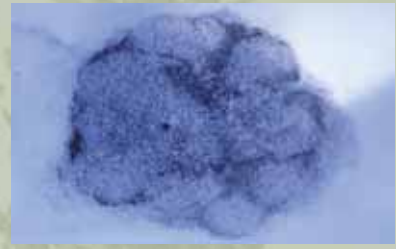


Wildlife Roadkill Identification Guide

2008 Edition

Ministry of Transportation
Engineering Branch
Environmental Management Section

940 Blanshard Street
PO BOX 9850 STN PROV GOVT
Victoria, British Columbia
Canada V8W 9T5



Library and Archives Canada Cataloguing in Publication Data

Sielecki, Leonard E.

Wildlife roadkill identification guide. — 2008 ed.

Includes bibliographical references: p.

ISBN 978-0-7726-5918-7

1. Roadkills - British Columbia - Identification -Handbooks, manuals, etc. 2. Traffic safety and wildlife - British Columbia.
I. British Columbia. Ministry of Transportation. Environmental Management Section.
II. Title.

HE5620.W54S53 2008 591.9711 C2008-960024-X

© Copyright 2008

All rights reserved. No part of this report may be reproduced in any form or by any means without permission in writing from the author or the Government of British Columbia.

To order additional print copies of this publication online, go to www.publications.gov.bc.ca. Publications can also be ordered by contacting Queen's Printer Publication Services by phone, fax or email.

QP Publication Services

Phone: (250) 387-6409

Toll-free (Canada and United States) 1-800-663-6105

Fax: (250) 387-1120

Email: QPPublications@gov.bc.ca

For digital copies, please visit:

http://www.th.gov.bc.ca/publications/eng_publications/environment/WRIG/



Wildlife Roadkill Identification Guide 2008 Edition

Author:	Leonard E. Sielecki, M.Sc., MCIP, R.P.Bio
Date:	January 2008
Prepared for:	Environmental Management Section Engineering Branch British Columbia Ministry of Transportation Victoria, B.C. Canada
Contact Person:	Leonard E. Sielecki, M.Sc., MCIP, R.P.Bio Environmental Issues Analyst Environmental Management Section Engineering Branch British Columbia Ministry of Transportation 4B – 940 Blanshard Street PO Box 9850 STN PROV GOVT Victoria, B.C. Canada V8W 9T5 Phone: (250) 356-2255 Email: leonard.sielecki@gov.bc.ca
Abstract:	<p>The British Columbia Ministry of Transportation (BCMoT) has been monitoring motor vehicle-related wildlife mortality with its Wildlife Accident Reporting System (WARS) since the late 1970's. Detailed species information on "roadkilled" wildlife found on Provincial highways is collected on a daily basis and entered into the Ministry's WARS database.</p> <p>This guide provides species-specific information on wildlife typically found on British Columbia highways to assist those identifying carcasses for WARS reporting purposes. The guide provides a general description of the physical appearance, life stages, numerical abundance and geographic distribution of each animal. Where identification of a wild animal is difficult because of the condition of its remains, more accurate reporting may be possible by observing identifiable physical characteristics, such as colour, size and footprint pattern, and cross referencing these details with typical seasonal periods of activity and known mapped habitat locations near Provincial highways.</p>
Comments:	This guide was developed to provide general, introductory information to help operational staff and private maintenance contractors of the British Columbia Ministry of Transportation identify those species of wildlife involved in wildlife-related motor vehicle collisions on Provincial highways. Improved accuracy in species identification will help support the Ministry's decision making process for wildlife accident reduction initiatives, ranging from species-specific wildlife warning signs to wildlife exclusion systems.
Keywords:	Wildlife, Roadkill, Identification, Guide, British Columbia, North American Badger, Black Bear, Grizzly Bear, Bison, Woodland Caribou, Cougar, Coyote, Mule Deer, Black-tailed Deer, White-tailed Deer, Roosevelt Elk, Rocky Mountain Elk, Alaskan Moose, Northwestern Moose, Shiras Moose, Porcupine, Bighorn Sheep, Wolf

ADVISORY FOR HANDLING WILDLIFE CARCASSES

Note: This advisory does not replace or supersede any applicable Federal or Provincial legislation or regulations, or the regulations or requirements of the Worker Compensation Board, the British Columbia Ministry of Environment or Provincial Health Authorities.

The British Columbia Ministry of Transportation strongly recommends that care be taken when handling wildlife carcasses at any time. Persons handling wildlife carcasses must be aware of the need to protect themselves, co-workers and others against potential exposure to infectious agents, and the inadvertent spread of these infectious agents. Careless handling of wildlife carcasses can create potentially harmful exposures for humans, causing serious diseases, including: rabies, lyme disease, salmonella, and e-coli. Failure to properly disinfect tools and vehicles may also infect co-workers, as well as potentially spread disease to the general public and wildlife population. Diseases not known to be dangerous to humans can also be spread to unaffected wild animal populations by careless carcass handling and inadequate disinfecting of gloves, clothing and tools.

BASICS

1. Always wash hands with soap and water, or use waterless hand sanitizer, after handling wildlife carcasses.
2. Do not allow the wildlife carcass or other contaminated surfaces to come in contact with bare skin.
3. Wear heavy water impermeable gloves if your hands are in direct contact with carcasses to avoid being scratched & otherwise exposed to animal fluids. For additional protection wear long vinyl gloves inside the heavy water impermeable work gloves.
Wash your gloves thoroughly with soap and water after handling carcasses.
4. Wear coveralls if your clothes come into contact with carcasses. Wash the coveralls regularly with soap and water. In the event clothes become contaminated, they should be removed as quickly as possible, and washed separately from all other laundry, following normal washing instructions.
5. Be aware that ticks and fleas present a health risk as they leave the dead carcass in search of a new host. Ticks can be picked-up from a dead animal host. As a precaution against tick-borne diseases, a thorough personal body examination for attached ticks should be done daily.

BEFORE HANDLING A CARCASS

1. Before handling a carcass, confirm the animal is dead by prodding with a long-handled tool. Startling an injured, apparently lifeless animal, can increase potential for contamination, and can otherwise be dangerous.
2. Injured/dying animals, or animals otherwise exhibiting abnormal behaviour, should be reported to the local Conservation Officer or telephone 1-800-663-9453.

3. Numerous dead animals or birds found in one location should be reported to the local Conservation Officer or 1-800-663-9453.

LIFTING AND MOVING WILDLIFE CARCASSES

1. Care should be taken when lifting and moving wildlife carcasses to avoid back injuries. An assessment of the weight and awkwardness of a wildlife carcass should be made before attempting to lift or move it. A large or heavy wildlife carcass may require two or more people and lifting equipment.

PERSONAL CLEANING EQUIPMENT

1. Soap and hot water, or waterless hand sanitizer, should be available for personal cleaning purposes.
2. Portable eyewash and first aid kit should be available and used as necessary.

TOOLS

1. All tools used for handling dead wildlife should be dedicated to this purpose only. These tools should have no pointed or sharp edges, and should be clearly marked to identify them for carcass handling purposes.
2. Disinfect contaminated tools, equipment and vehicles regularly with a liberal application of a bleach solution (9 parts water, 1 part bleach), prepared fresh daily. Tools used for handling wildlife carcasses should be kept separately in a designated location. Cleaning tools should be done outdoors using eye protection and gloves with eyewash available.

CONTAMINATION

1. Persons with scratches or cuts that become contaminated from a carcass or its fluids should immediately wash thoroughly with soap and hot water. If not available, clean affected areas temporarily with waterless hand sanitizer, and later wash thoroughly with hot water and soap. Immediately report to work supervisor.
2. Persons splashed by animal fluids should wash and rinse affected areas immediately. Wash eyes with eyewash or clean water. Immediately report to work supervisor.
3. If exposure to rabies is suspected, the carcass should immediately be iced and retained for examination by proper authorities. Immediately report to work supervisor.

For more information on occupational and environmental health and safety information in British Columbia, please contact:

Workers' Compensation Board of British Columbia (WorkSafeBC)
Prevention Information Line

tel: (604) 276-3100 **toll-free:** 1-888-621-7233

after-hours: 1-886-922-4357 **fax:** (604) 276-3247




Photo Credits *(All photos used with permission and subject to copyright.)*

Order of photo credits on page: top to bottom, left to right.

Cover & page design elements	Beverly van Druten-Blais, BC Ministry of Transportation
Cover	Wolf paw print in snow, Barry O'Neill, US National Park Service
Cover	Bighorn Sheep, Jim Peaco, US National Park Service
Cover	Cougar with cub, Stock Photo
Cover	Grizzly Bear Claws, Leonard Sielecki, BC Ministry of Transportation
Cover	Baby Badger, Glen Lam
Cover	Black bear, Bryan Harry, US National Park Service
Page 3	Badger, Stock Photo
Page 3	Badger, Tom Hall
Page 3	Badger Family, Roger Packham, BC Ministry of Environment
Page 3	Baby Badger, Glen Lam
Page 4	Badger, Stock Photo
Page 4	Dead badger, Trevor McKinley, Sylvan Consulting Ltd.
Page 5	Badger pelt, Leonard Sielecki, BC Ministry of Transportation
Page 5	Badger paw, Leonard Sielecki, BC Ministry of Transportation
Page 6	Three black bears, BC Parks
Page 6	Black bear, Tourism BC
Page 6	Black bear cubs, Tourism BC
Page 6	Black bear, Bryan Harry
Page 7	Group of bears, R. Robinson, BC Ministry of Transportation
Page 7	Dead Kermode bear, Dave Dickson, Insurance Corporation of British Columbia
Page 8	Bear pelts, Leonard Sielecki, BC Ministry of Transportation
Page 8	Bear paw, Leonard Sielecki, BC Ministry of Transportation
Page 9	Grizzly bear, BC Parks
Page 9	Grizzly bear, Dave Dickson, Insurance Corporation of British Columbia
Page 9	Grizzly bear and cub, Tourism BC
Page 9	Group of Grizzly bears, Dave Dickson, Insurance Corporation of British Columbia
Page 10	Grizzly bear, Jim Peaco, US National Park Service
Page 10	Grizzly bear footprints, US National Park Service
Page 10	Human hand and Grizzly bear paw, Leonard Sielecki, BC Ministry of Transportation
Page 11	Grizzly bear pelts, Leonard Sielecki, BC Ministry of Transportation
Page 11	Grizzly bear claws, Leonard Sielecki, BC Ministry of Transportation
Page 12	Bison, Stock Photo
Page 12	Bison, Stock Photo
Page 12	Bison calf, Tom Hall
Page 12	Bison cows and calves, Tom Hall
Page 13	Bison in snow, Dave Dickson, Insurance Corporation of British Columbia
Page 13	Bison crossing road, Dave Dickson, Insurance Corporation of British Columbia
Page 14	Bison pelt, Leonard Sielecki, BC Ministry of Transportation
Page 14	Bison pelt, Leonard Sielecki, BC Ministry of Transportation
Page 15	Woodland Caribou, BC Parks
Page 15	Woodland Caribou, BC Ministry of Forests
Page 15	Woodland Caribou, Mike Fenger
Page 15	Woodland Caribou, Cliff Razzo, BC Ministry of Transportation
Page 16	Woodland Caribou, Cliff Razzo, BC Ministry of Transportation
Page 16	Dead Woodland Caribou, Colin Leake
Page 17	Woodland Caribou pelt, Leonard Sielecki, BC Ministry of Transportation
Page 17	Woodland Caribou hoof, Leonard Sielecki, BC Ministry of Transportation
Page 18	Cougar, BC Parks
Page 18	Cougar with cub, Stock Photo
Page 18	Cougar cubs, W.L. Miller, US National Park Service
Page 18	Cougar, BC Parks
Page 19	Cougar paw print in snow, Jim Peaco, US National Park Service
Page 19	Man with dead cougar, Keith Marcotte
Page 20	Cougar claw, Leonard Sielecki, BC Ministry of Transportation
Page 20	Cougar paws, Leonard Sielecki, BC Ministry of Transportation
Page 21	Coyote, BC Parks
Page 21	Coyote, Stock Photo
Page 21	Coyote, Jim Peaco, US National Park Service

Page 21	Howling coyote, Bryan Harry, US National Park Service
Page 22	Coyote on ice, Stock Photo
Page 22	Coyote remains, BC Ministry of Transportation
Page 23	Coyote tail, Leonard Sielecki, BC Ministry of Transportation
Page 23	Coyote paw, Leonard Sielecki, BC Ministry of Transportation
Page 24	Mule deer, BC Parks
Page 24	Mule deer buck, Ed Austin and Herb Jones, US National Park Service
Page 24	Mule deer doe with two fawns, US National Park Service
Page 25	Mule deer, Ron Shade, US National Park Service
Page 25	Mule deer, Tupper Ansel Blake, US Fish and Wildlife Service
Page 26	Black-tailed deer tail, Leonard Sielecki, BC Ministry of Transportation
Page 26	Black-tailed deer hoof, Leonard Sielecki, BC Ministry of Transportation
Page 26	Mule deer tail, Leonard Sielecki, BC Ministry of Transportation
Page 26	Mule deer hoof, Leonard Sielecki, BC Ministry of Transportation
Page 27	White-tailed deer, BC Parks
Page 27	White-tailed deer, Wisconsin Department of Natural Resources
Page 27	White-tailed deer, Stock Photo
Page 27	White-tailed deer, Wisconsin Department of Natural Resources
Page 28	White-tailed deer, Wisconsin Department of Natural Resources
Page 28	Dead White-tailed deer, Leonard Sielecki, BC Ministry of Transportation
Page 29	White-tailed deer pelt, Leonard Sielecki, BC Ministry of Transportation
Page 29	White-tailed deer hoof, Leonard Sielecki, BC Ministry of Transportation
Page 30	Elk, BC Parks
Page 30	Elk, Dave Dickson, Insurance Corporation of British Columbia
Page 30	Elk, J. Schmidt, US National Park Service
Page 30	Elk calf, US National Park Service
Page 31	Dead Roosevelt Elk, BC Ministry of Transportation
Page 32	Elk pelt, Leonard Sielecki, BC Ministry of Transportation
Page 32	Elk hoof, Leonard Sielecki, BC Ministry of Transportation
Page 33	Moose, BC Parks
Page 33	Bull Moose, Jeff Foott, US National Park Service
Page 33	Moose, Staff Sgt. Joshua Strang, Eielson Air Force Base, U.S. Air Force
Page 33	Moose, US National Park Service
Page 33	Moose, BC Parks
Page 34	Moose, Cantor, US National Park Service
Page 34	Dead moose, Colin Leake
Page 35	Moose pelt, Leonard Sielecki, BC Ministry of Transportation
Page 35	Moose hoof, Leonard Sielecki, BC Ministry of Transportation
Page 36	Porcupine, Stock Photo
Page 36	Porcupine, US National Park Service
Page 36	Porcupine in tree, Tom Hall
Page 36	Porcupine, US National Park Service
Page 37	Porcupine on log, Mary Meagher, US National Park Service
Page 37	Porcupine, Betsy Ely, courtesy Pasty Central
Page 38	Porcupine quills, Leonard Sielecki, BC Ministry of Transportation
Page 38	Porcupine paws, Leonard Sielecki, BC Ministry of Transportation
Page 39	Bighorn Sheep, BC Parks
Page 39	Bighorn Sheep, William S. Keller, US National Park Service
Page 39	Bighorn Sheep ewe with lamb, J. Schmidt, US National Park Service
Page 39	Bighorn Sheep, Tourism BC
Page 40	Bighorn Sheep, Jim Turner, BC Ministry of Transportation
Page 40	Dead Bighorn Sheep, Tom Hall
Page 41	Bighorn Sheep pelt, Leonard Sielecki, BC Ministry of Transportation
Page 41	Bighorn Sheep hoof, Leonard Sielecki, BC Ministry of Transportation
Page 42	Wolf, BC Parks
Page 42	Wolf, Stock Photo
Page 42	Wolf with pup, Stock Photo
Page 42	Wolf, Jim Peaco, US National Park Service
Page 43	Wolf paw print in snow, Barry O'Neill, US National Park Service
Page 43	Dead wolf, Colin Leake
Page 44	Wolf pelt, Leonard Sielecki, BC Ministry of Transportation
Page 44	Wolf paw, Leonard Sielecki, BC Ministry of Transportation
Page 44	Wolf paw, Leonard Sielecki, BC Ministry of Transportation





Wildlife Roadkill Identification Guide 2008 Edition

TABLE OF CONTENTS

Photo credits.....	iii
Acknowledgements.....	vi
1.0 WILDLIFE AND HIGHWAYS IN BRITISH COLUMBIA.....	1
1.1 Introduction.....	1
1.2 Purpose.....	1
2.0 SPECIES PROFILES	3
2.1 Badger	
North American Badger.....	3
2.2 Bear	
Black Bear.....	6
Grizzly Bear.....	9
2.3 Bison	12
2.4 Caribou	
Woodland Caribou	15
2.5 Cougar	18
2.6 Coyote	21
2.7 Deer	
Mule and Black-tailed Deer	24
White-tailed Deer	27
2.8 Elk	
Roosevelt Elk and Rocky Mountain Elk	30
2.9 Moose	
Alaskan Moose, Northwestern Moose and Shiras Moose	33
2.10 Porcupine	36
2.11 Sheep	
Bighorn Sheep	39
2.12 Wolf	42
3.0 REFERENCES.....	45

Acknowledgements

This guide was made possible only because of a wealth of information, materials and services provided by a number of talented individuals and supportive organizations.

Graphics materials, photographs and information were provided by:

Natural History Section, Curatorial Services Branch, Royal British Columbia Museum;

Environmental Stewardship Division, British Columbia Ministry of Environment;

BC Parks, British Columbia Ministry of Environment; and

United States National Park Service, United States Department of the Interior.

Curatorial services for the Royal British Columbia Museum terrestrial mammal specimens collection were provided by:

Gavin H. Hanke, Ph.D., Curator of Vertebrate Zoology, Natural History Section, Curatorial Services Branch, Royal British Columbia Museum.

Referrals to government and non-government sources of species-specific information were provided by:

Laura Friis, Species Specialist, Environmental Stewardship Division, British Columbia Ministry of Environment.

Professional design, layout, mapping and graphic production services were provided by:

Beverly van Druten-Blais, Graphic Design Specialist, Engineering Branch, British Columbia Ministry of Transportation; and

Nancy Dolan, Graphic Designer, Engineering Branch, British Columbia Ministry of Transportation.

