



BRITISH  
COLUMBIA

Ministry of  
Transportation

# WARS 1983-2002

Wildlife Accident  
Reporting and Mitigation  
in British Columbia

## Special Annual Report

### Ministry of Transportation

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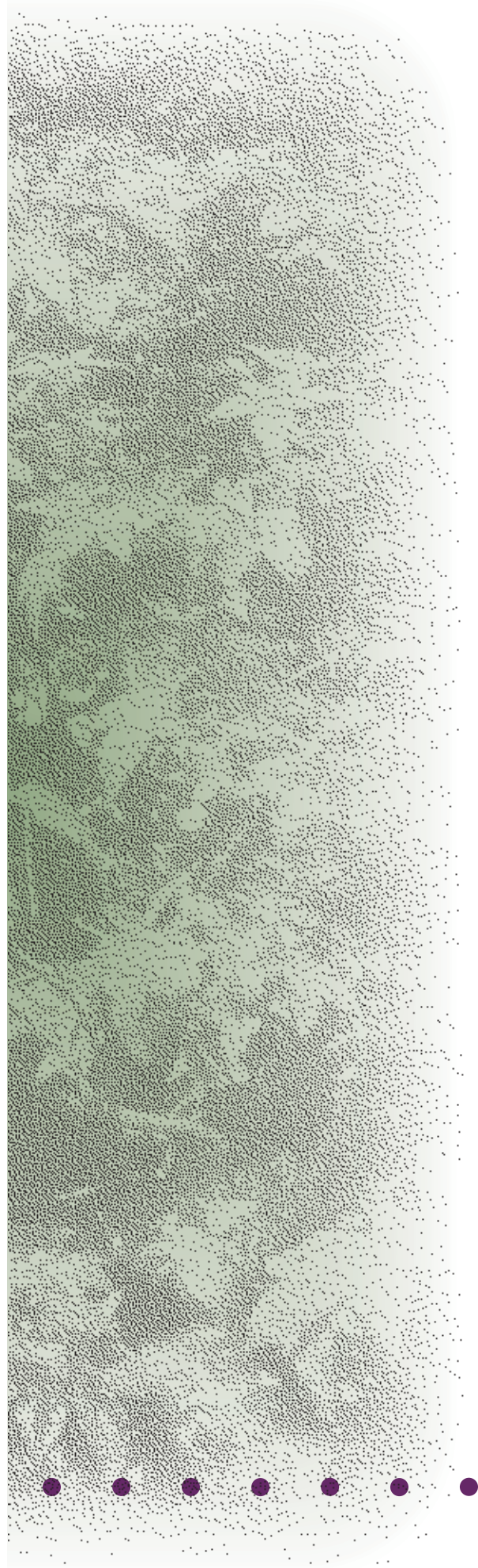
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## WARS 1983–2002 Wildlife Accident Reporting and Mitigation in British Columbia Special Annual Report

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**Abstract:** The Wildlife Accident Reporting System (WARS) is designed to collect and store information on wildlife killed on highways in British Columbia. The WARS database contains over 78,000 records collected since 1978. Wildlife accident information is used by the Ministry to:

- 1) Identify accident-prone locations and accident trends;
- 2) direct cost-effective mitigation efforts;
- 3) evaluate the effectiveness of mitigation techniques;
- 4) provide data for highway planning purposes;
- 5) model and forecast accidents;
- 6) analyze traffic and climatic relationships for species-specific accident trends;
- 7) develop species-specific accident risk profiles for highway corridors; and
- 8) establish policies and strategies for accident issues and mitigation initiatives.

The success of the WARS system in British Columbia has made it a model for other agencies seeking to monitor wildlife-related motor vehicle accidents.

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**Comments:** In 2002, Ministry Maintenance Contractors reported finding 5,032 dead wild animals on British Columbia highways. Approximately 80% of the animals reported killed were deer. The number of wildlife accidents reported to the Ministry decreased by 2.7% from 2001.

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**Keywords:** WARS, wildlife, accident, reporting, system, road, kills, statistics, exclusion, fencing, British Columbia, risk, cost, deer, moose, elk, bear, sheep, mitigation, overpass, underpass, road ecology.

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## EXECUTIVE SUMMARY

The British Columbia Ministry of Transportation (BCMoT) administers the Wildlife Accident Reporting System (WARS). The WARS system is designed to analyze wildlife accident data collected by BCMoT Maintenance Contractors on numbered highways in British Columbia.

Since 1978, over 78,000 wildlife accidents have been reported on provincial highways. More than 90% of the accidents involved deer, moose and elk. Between 1995 and 2000, 13 people were reported killed in wildlife-related motor vehicle accidents in British Columbia. After weather, the Insurance Corporation of British Columbia (ICBC) rates wildlife as the next highest environmental contributing factor for police-attended accidents. Between 1997 and 2002, ICBC spent over \$118 million on wildlife-related motor vehicle accident claims.

In 2002, over 5,000 wildlife-related accidents were reported in British Columbia (table below). Between 2001 and 2002, the number of wildlife-related accidents reported decreased by 2.7%.

### Wildlife Accidents by BCMoT Region (Year 2002)

	Region 1	Region 2	Region 3	Total
Wildlife Accidents	1,221	2,871	939	5,031

In 2002, it is estimated wildlife accidents cost the Province over \$20 million in motor vehicle accident claims; \$580,000 in highway accident clean-up costs; \$320,000 in lost provincial hunting license revenues; and \$30 million in lost value to residents and non-residents who view or hunt wildlife.

BCMoT is committed to protect the safety of the motoring public; stem the rising societal cost of human fatalities and injuries, motor vehicle damage, and highway maintenance; and reduce the loss of wildlife on provincial highways. Consequently, BCMoT uses the WARS system to:

- 1) identify accident-prone locations and accident trends;
- 2) direct cost-effective mitigation efforts;
- 3) evaluate the effectiveness of mitigation techniques;
- 4) provide data for highway planning purposes;
- 5) model and forecast accidents;
- 6) analyze traffic and climatic relationships for species-specific accident trends;
- 7) develop species-specific accident risk profiles for highway corridors; and
- 8) establish policies and strategies for accident issues and mitigation initiatives.

The WARS system is becoming an increasingly valuable information resource for BCMoT, and other government agencies, consultants, researchers, wildlife associations, special interest groups and members of the general public. The Ministry of Water, Land and Air Protection uses WARS data to assess provincial wildlife population trends. ICBC uses WARS data for identifying highway locations where joint BCMoT/ICBC initiatives, such as exclusion fencing, warning reflectors, and infrared camera detection systems, can be targeted to reduce wildlife-related motor vehicle collisions. The success of the WARS system in British Columbia has made it a model for other agencies seeking to monitor wildlife-related motor vehicle accidents.







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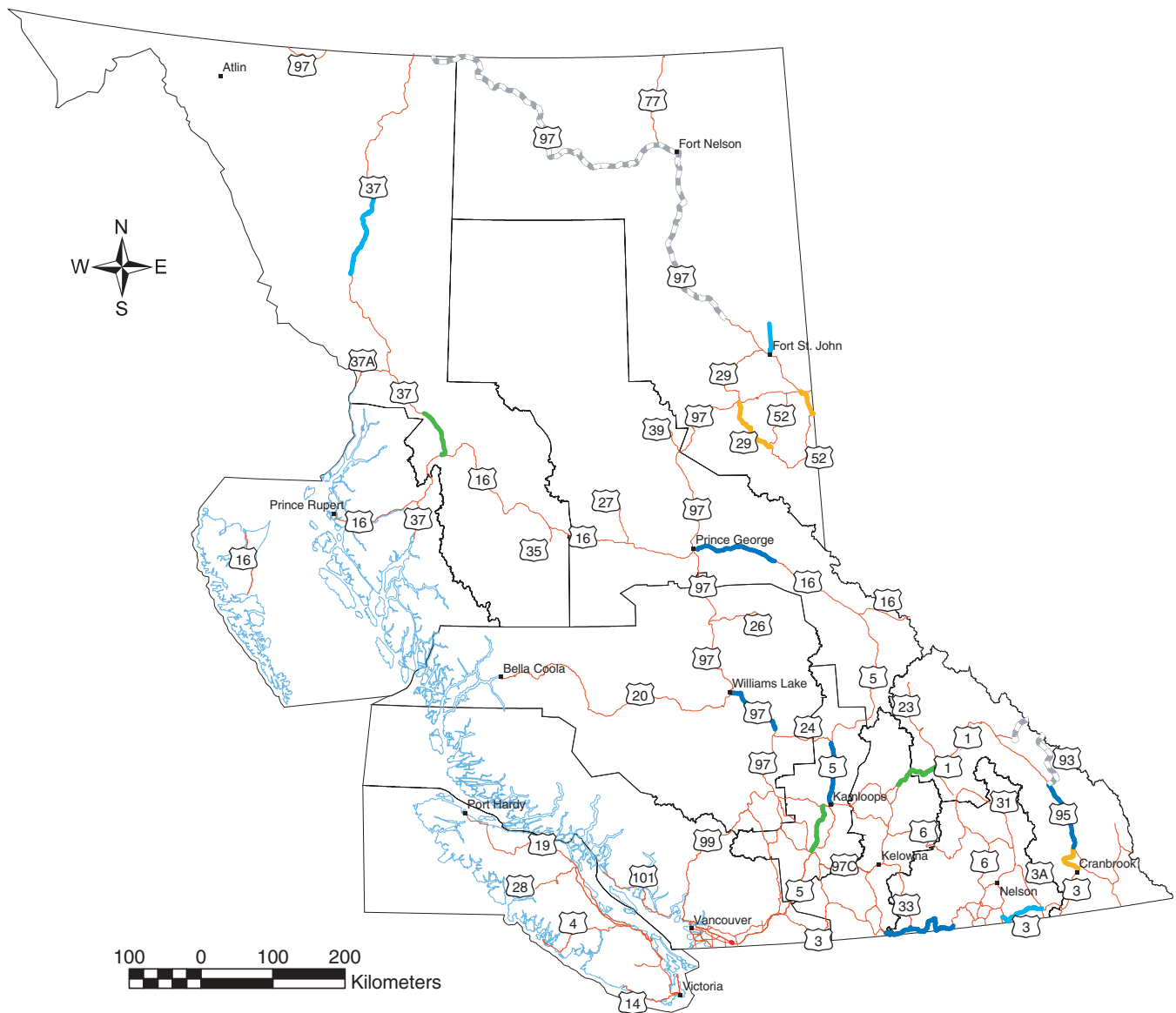




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**Map 5.8**

Caribou Accidents  
per Kilometre per Year  
(1993 - 2002)

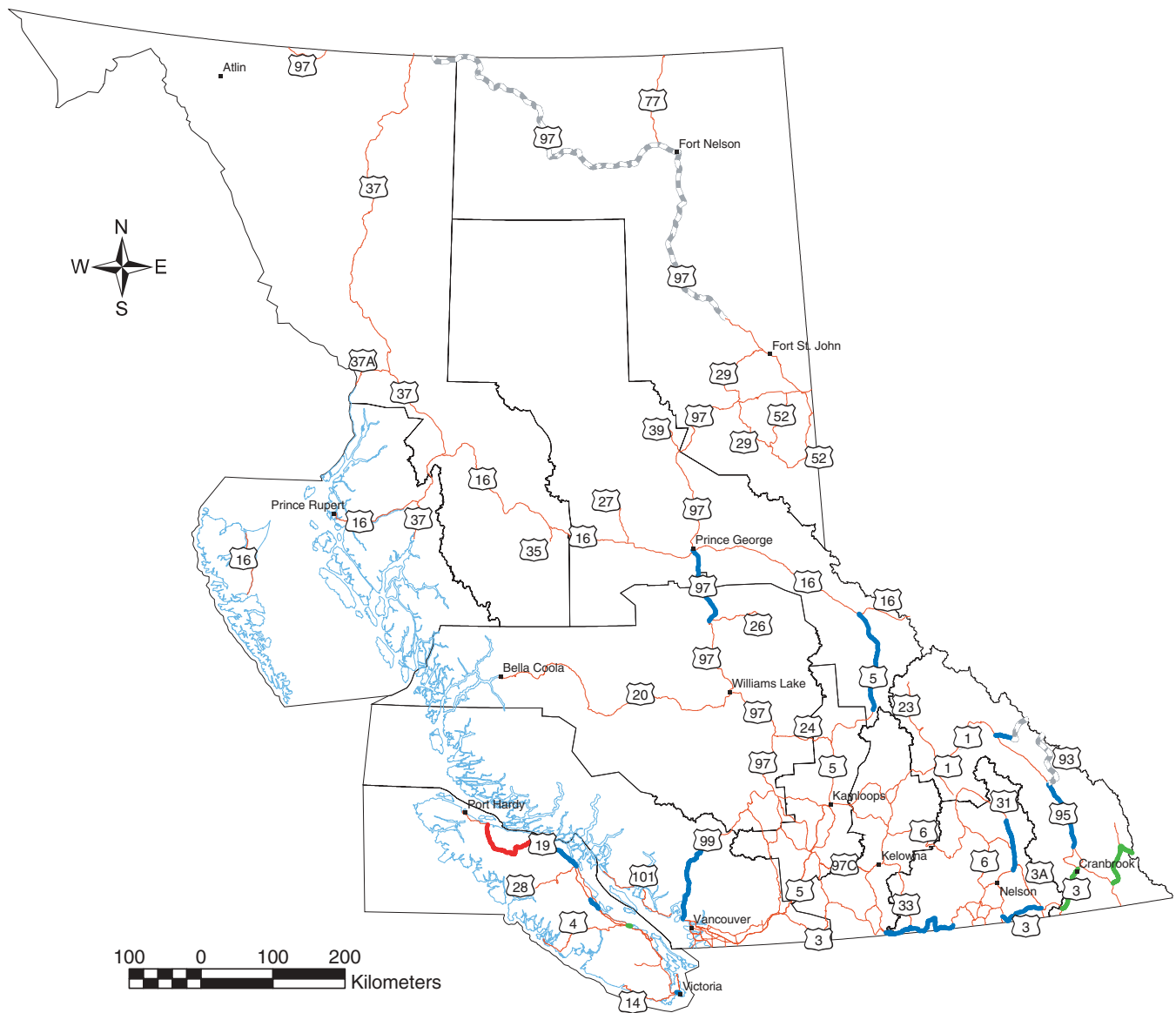
**Legend**

- 0.001
- 0.002
- 0.003
- 0.004 - 0.005
- 0.006 - 0.044
- No Accidents Reported on LKI Segment
- - - No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.9**

Total Cougar Accidents (1993 - 2002)

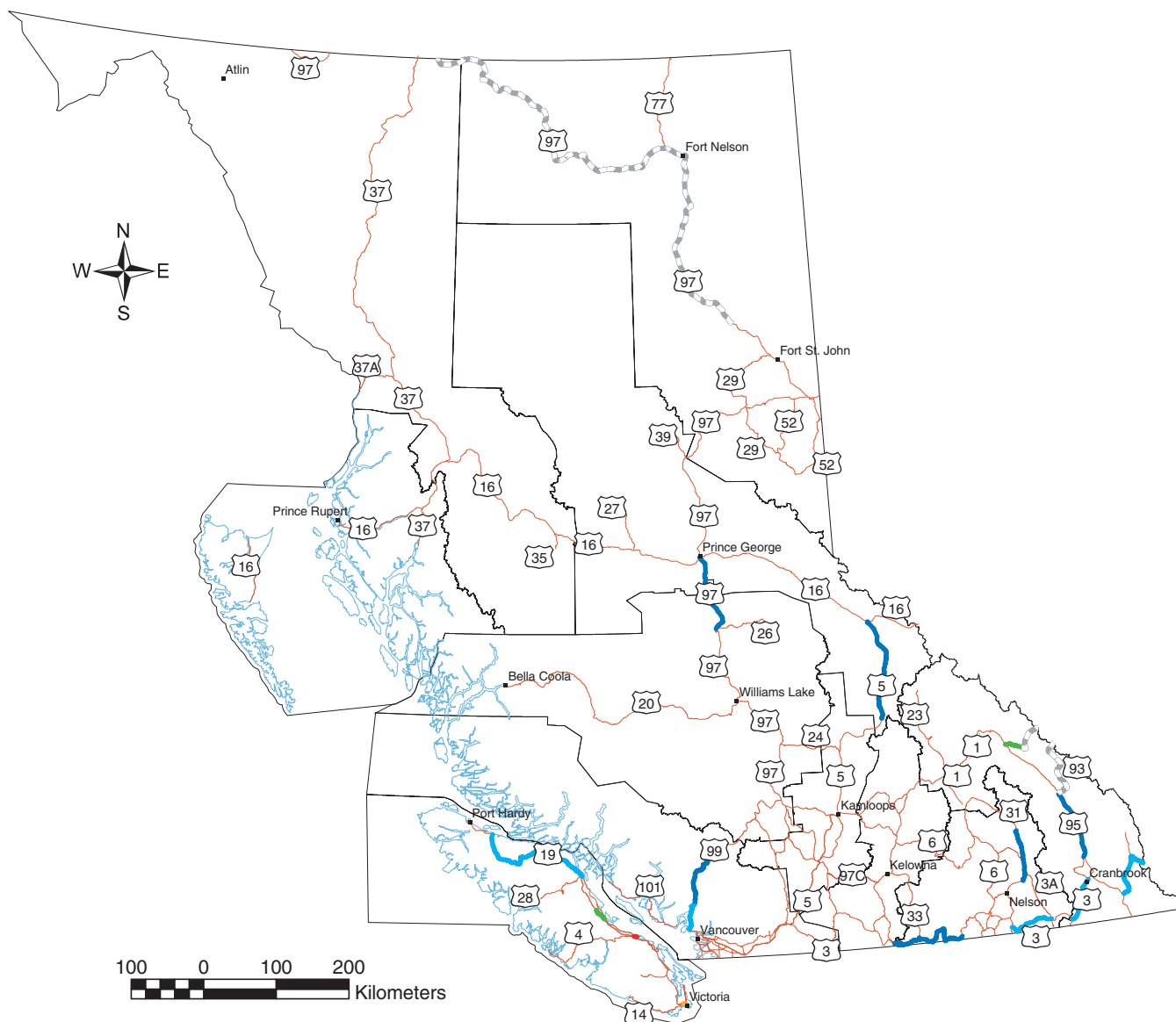
**Legend**

- 1
- 2
- 3
- No Accidents Reported on LKI Segment
- - - No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

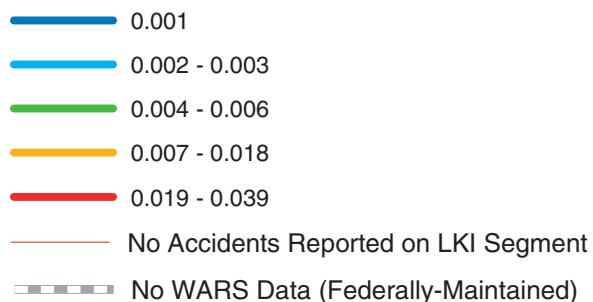
WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.10**

**Cougar Accidents  
per Kilometre per Year  
(1993 - 2002)**

**Legend**

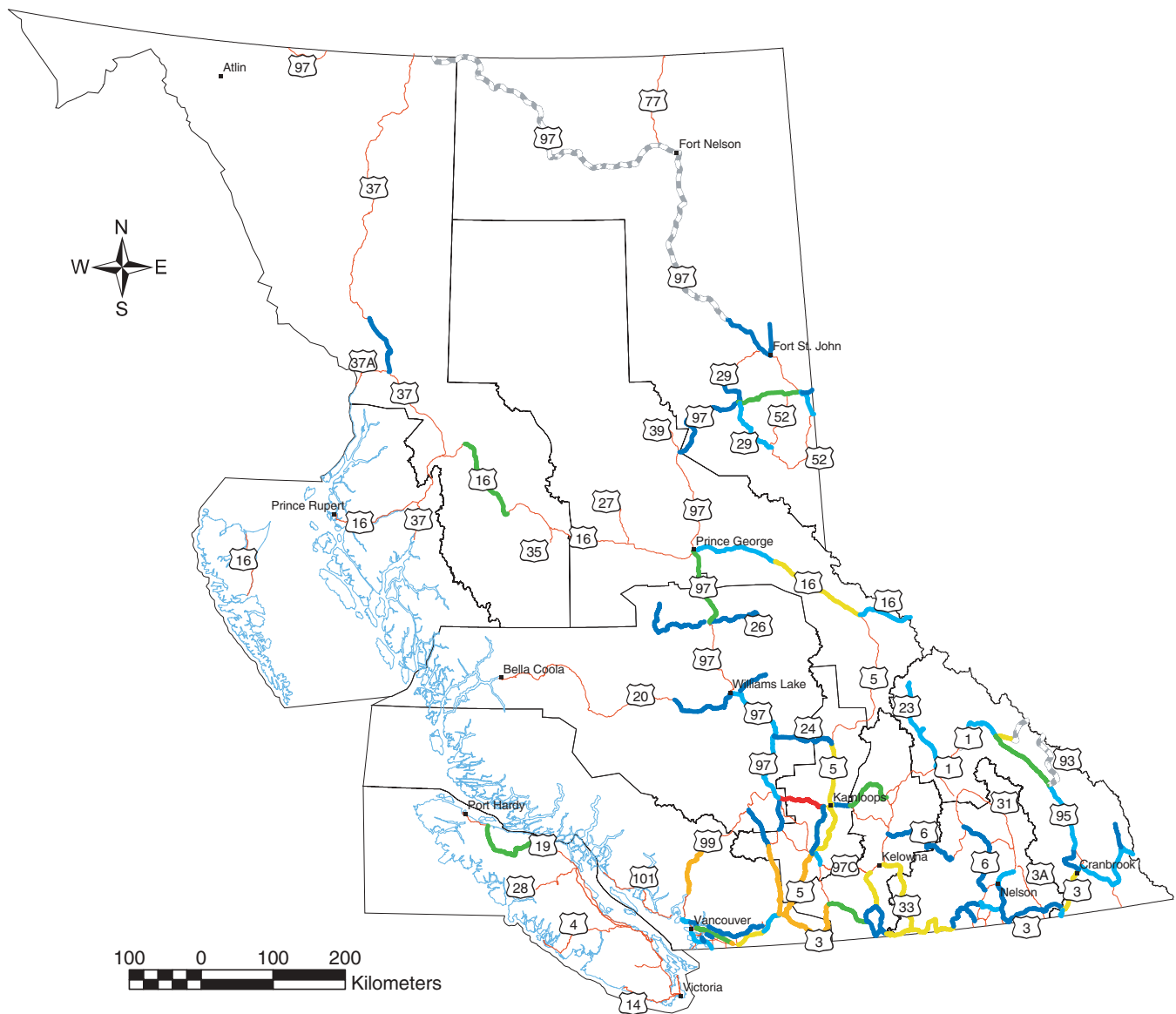


**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.





**Map 5.11**

Total Coyote Accidents (1983 - 1992)

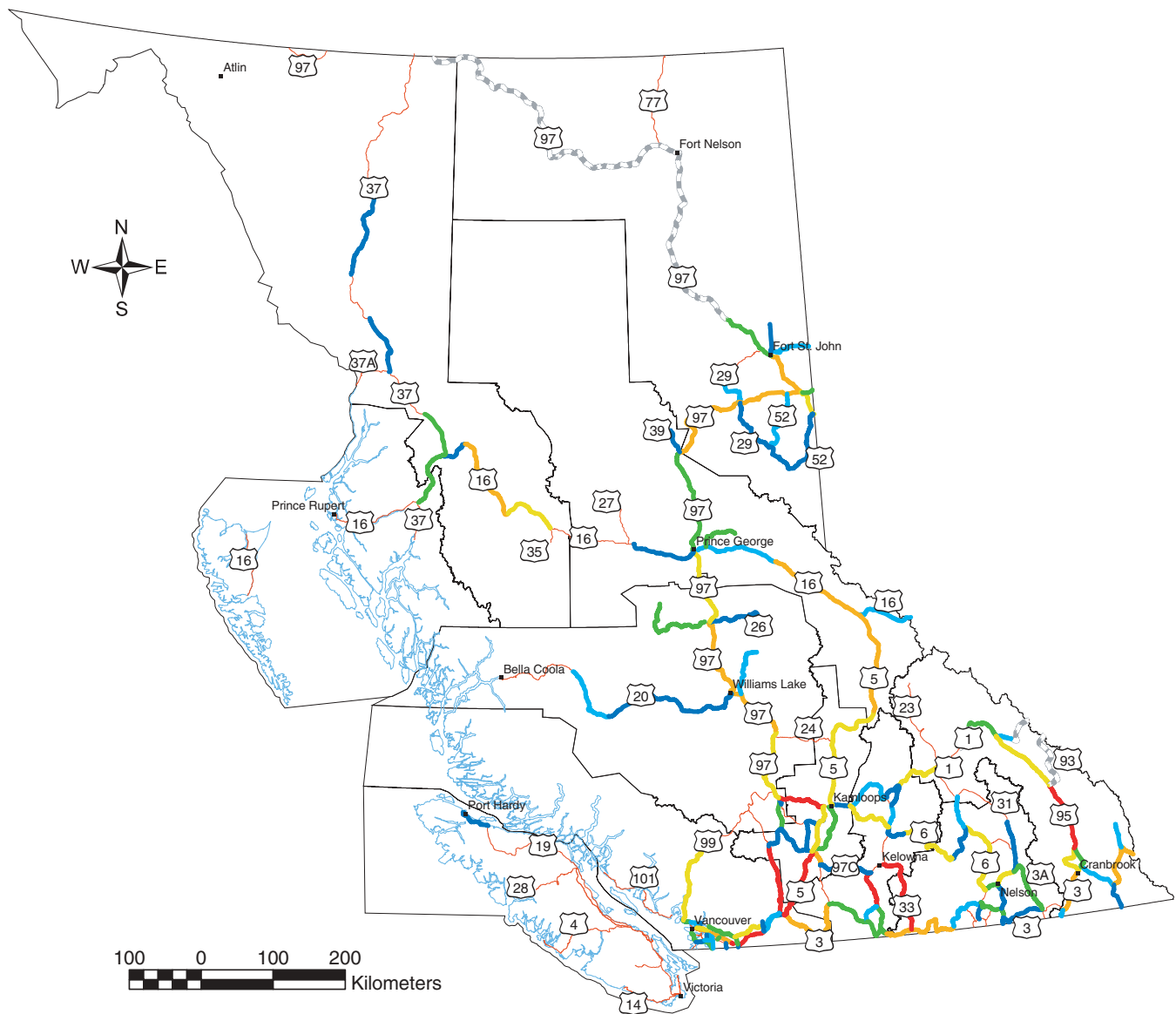
**Legend**

- 1
- 2 - 3
- 4 - 5
- 6 - 10
- 11 - 20
- 21 - 51
- No Accidents Reported on LKI Segment
- - - No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

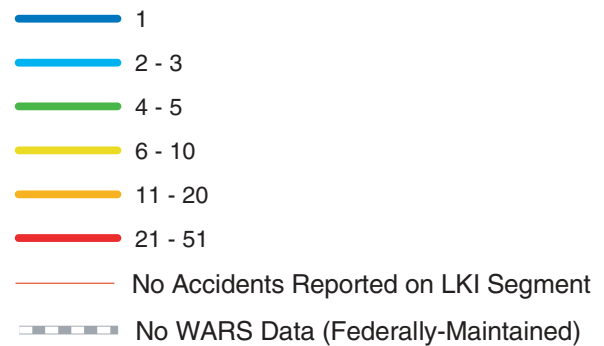
WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.12**

Total Coyote Accidents (1993 - 2002)

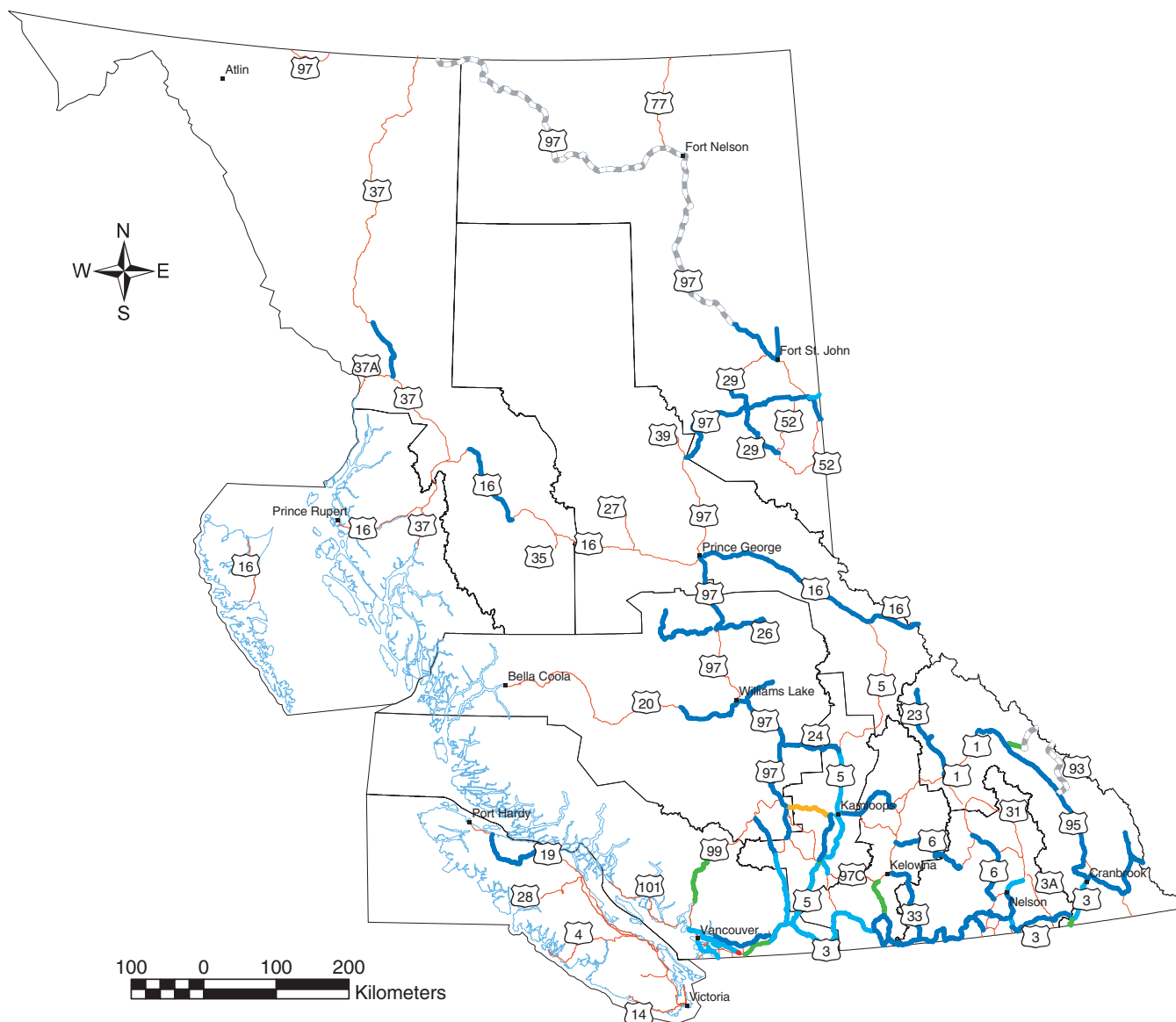
**Legend**



**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.13**

Coyote Accidents  
per Kilometre per Year  
(1983 - 1992)

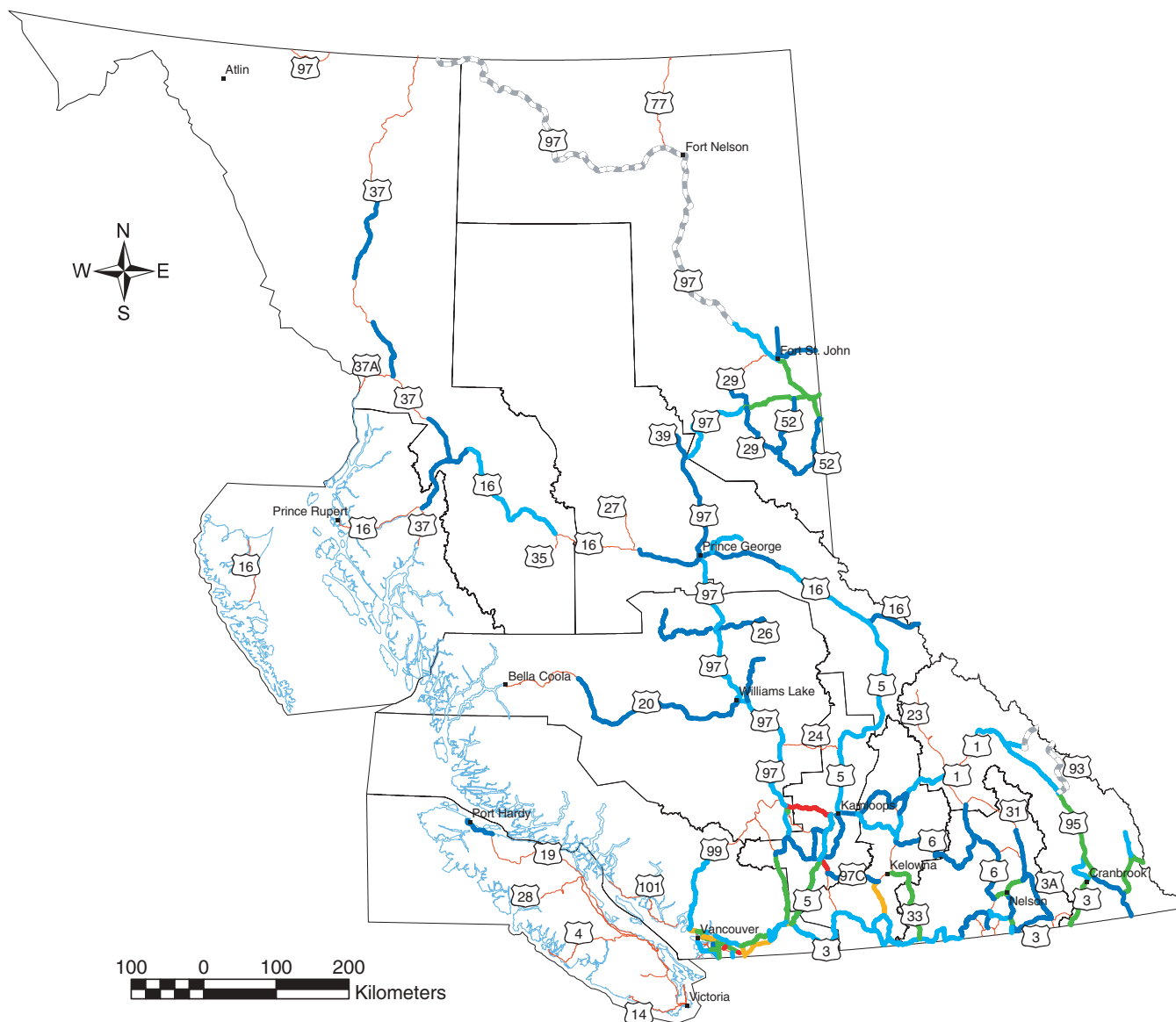
**Legend**

- 0.001 - 0.005
- 0.006 - 0.015
- 0.016 - 0.030
- 0.031 - 0.060
- 0.061 - 1.751
- No Accidents Reported on LKI Segment
- - - No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.14**

Coyote Accidents  
per Kilometre per Year  
(1993 - 2002)

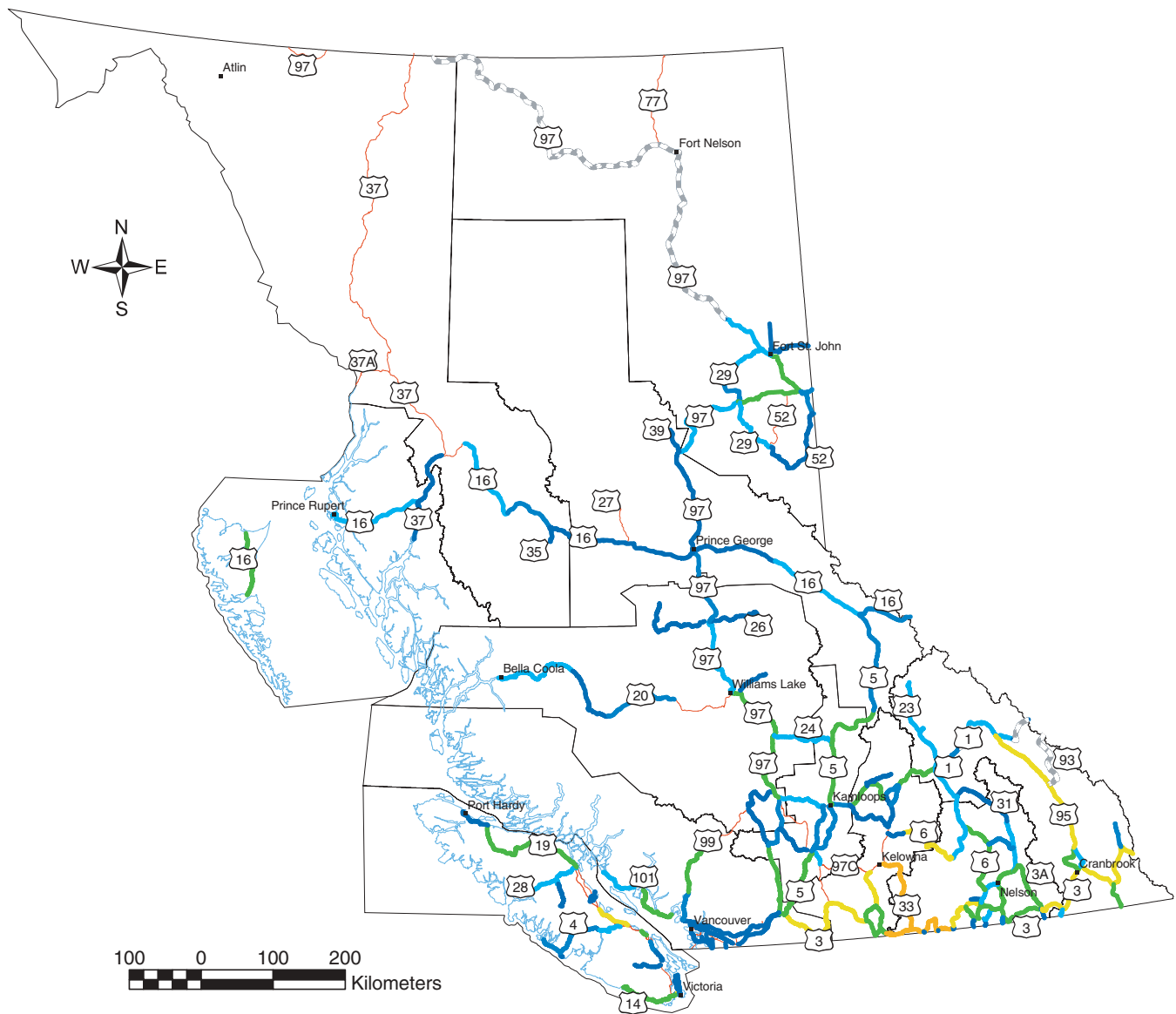
**Legend**

- 0.001 - 0.005
- 0.006 - 0.015
- 0.016 - 0.030
- 0.031 - 0.060
- 0.061 - 1.751
- No Accidents Reported on LKI Segment
- - - No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

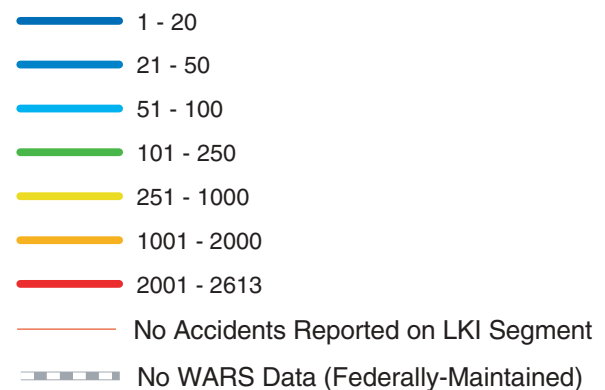
WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.15**

Total Deer Accidents (1983 - 1992)

**Legend**

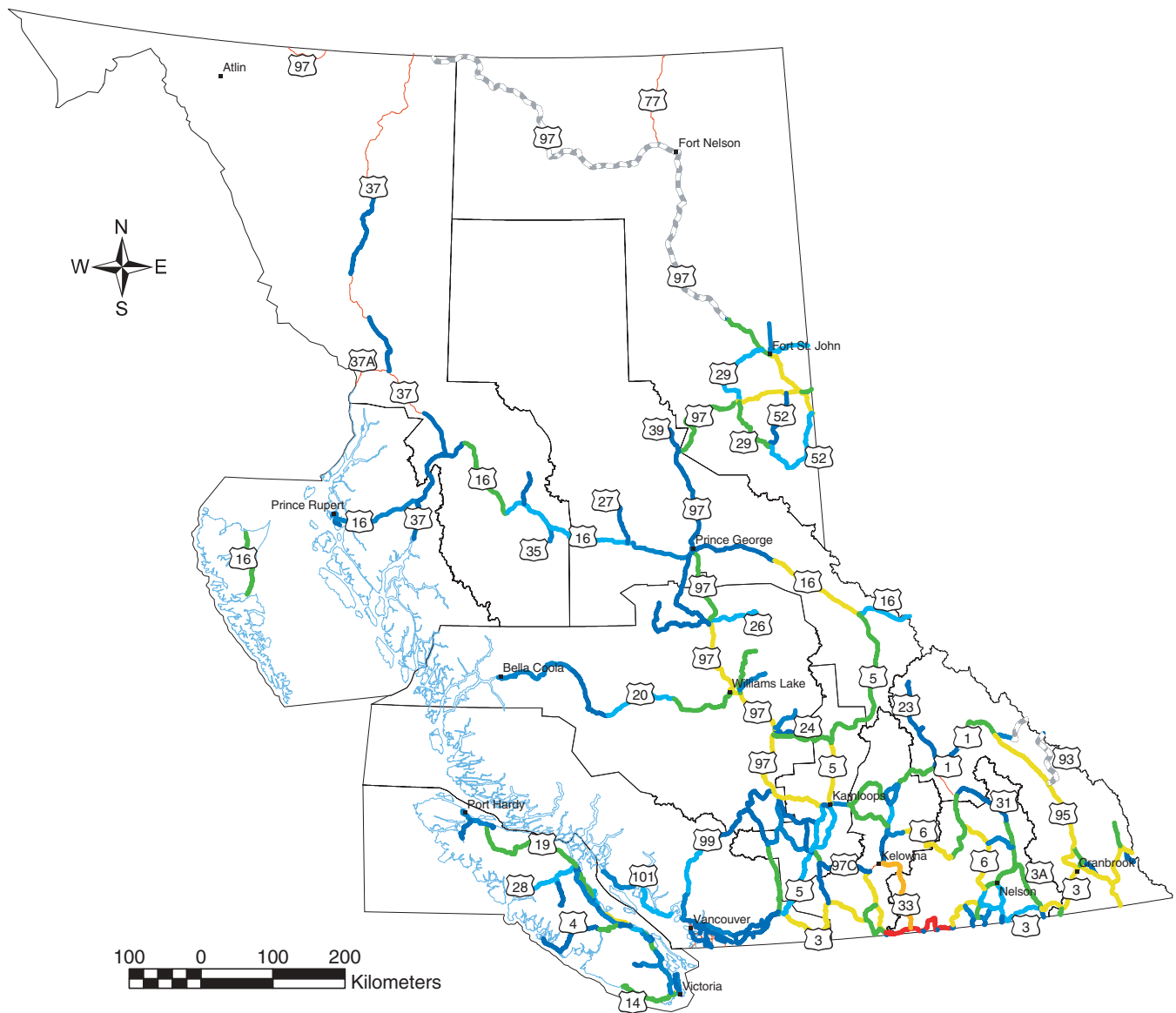


**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.





**Map 5.16**

Total Deer Accidents (1993 - 2002)

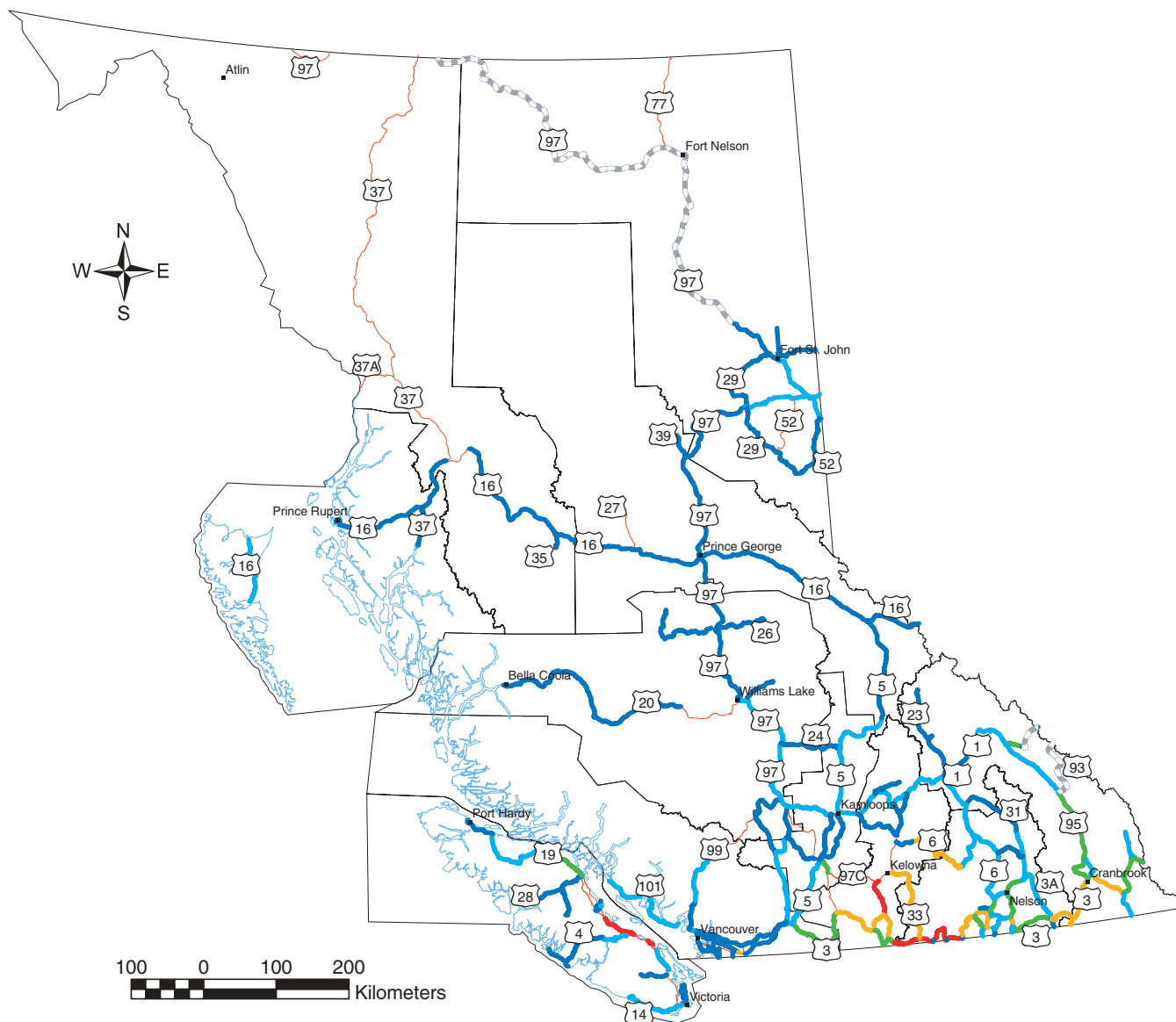
**Legend**

- 1 - 20
- 21 - 50
- 51 - 100
- 101 - 250
- 251 - 1000
- 1001 - 2000
- 2001 - 2613
- No Accidents Reported on LKI Segment
- No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.



**Map 5.17**

Deer Accidents  
per Kilometre per Year  
(1983 - 1992)

**Legend**

- 0.001 - 0.100
- 0.101 - 0.300
- 0.301 - 0.500
- 0.501 - 1.000
- 1.001 - 10.000
- No Accidents Reported on LKI Segment
- No WARS Data (Federally-Maintained)

**Notes:**

- (1) Reported Species not verified by wildlife specialist.
- (2) Discrepancies between the reported accident location and the normal range of the species may exist.

WARS 2002, Wildlife Accident Reporting System  
2002 Annual Report.  
British Columbia Ministry of Transportation,  
February 2004; maps produced by Ministry  
of Sustainable Resource Management.