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HPAI National Early Detection Data Management and Integration

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NBII Wildlife Disease Information Node

What is NBII?

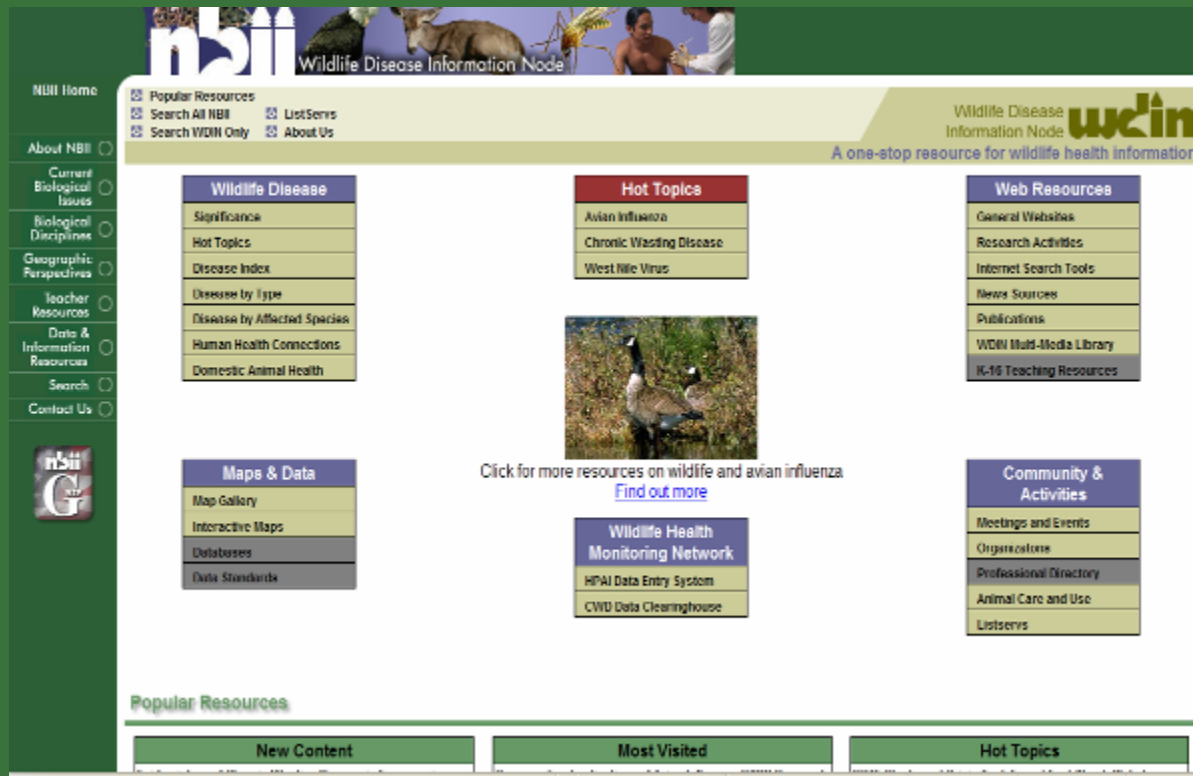
"A broad collaborative program to provide increased access to data and information on the nation's biological resources."

- Databases
- Information products
- Analytical tools

http://www.nbii.gov/

WDIN Components

- Integrated information resources
  - Comprehensive web portal
  - Current awareness
  - Visual libraries



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WDIN Components

- Monitoring and data management system
  - Disease reporting
  - Disease mapping

Wildlife Health Monitoring Network

The Wildlife Health Monitoring Network (WHMN) is a collaboration between public and private institutions, including the general public, dedicated to a better understanding of health and disease in free-ranging wildlife. We hope that the suite of tools on this site will allow for timelier reporting and analysis of wildlife morbidity and mortality events. Through this process we will gain a national perspective, and expand our abilities to recognize atypical events, caused by either natural or man-made processes.

National HPAI Early Detection Data System

One goal of the U.S. Interagency Strategic Plan for the development of an "Early Detection System for Asian H5N1 Highly Pathogenic Avian Influenza in Wild Migratory Birds" is to development a National database, that can contain HPAI data collected in accordance with Plan guidelines, and can be used by all agencies, organizations, and policy makers. As part of its Wildlife Health Monitoring Network, the NBII Wildlife Disease Information Node has created this National HPAI Early Detection Data System for this purpose. We expect that the content and format will change frequently based on the contributions and needs of the many collaborators in this effort.

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National HPAI Early Detection Data System

- Database for use by all agencies, organizations and policy makers
- Input through multiple routes
- Match, compare and transfer data
- Secure and accessible
- Mapping and spatial modeling

Why is this a good idea?

- Multi-agency efforts need good communication tools
  - Sampling distribution
    - Species coverage
    - Geographic coverage
- Information for managers (and public)
- Cost-effective; efficient
- Larger data set for analysis
  - Data must be comparable
  - Data ownership protected

Potential Users and Uses

- Federal
- State and Tribal
- Academic
- Non-governmental
- International

❖ Public

- Data sharing and communication
- Collaborator and manager information
- Data management
- Mapping

❖ Questions and information

Barriers to Data Integration

- Social
  - Organizational rules and practices
  - Data ownership and publication rights
  - Increased effort required by collaborations
- Technical
  - Lack of process consistency
    - Collection methods, lab procedures, data standards
- Resource
  - Enough for specimen collection and analysis, but not data management

Wildlife Health Monitoring Network

- Began with CWD Data Clearinghouse
- Many agencies do not have dedicated systems for disease data management
  - Internal use or data sharing
- Components under development:
  - APHIS/WS Plague and Tularemia surveillance
  - NPS Wildlife Disease Reporting (POBS)
  - Wisconsin DNR Wildlife Health Monitoring
  - Seabird Ecological Assessment Network (SeaNET)

Data System Architecture

- Java J2EE environment 1.4.2 (HTML, javascript, JSP) for the web application;
- Microsoft SQL (database) to house the entered data;
- Apache 2 (web server);
- Tomcat 5; (application server);
- ESRI ArcIMS 9 (web-enabled mapping);
- ESRI ArcSDE (spatial data engine component on top of MS SQL).

Data System Security

- User ID / Login
- Security checkpoints
- Access roles determined by agency
  - data entry
  - data edit
  - data verification
  - data administrator

Data Access

Agency Level

Collaborator Level

Public Level

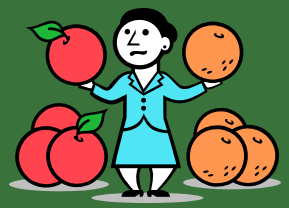
Decreasing access to data

Data Management

- Capture
  - Forms, tablets, PDA's
- Storage
  - Files, separate or shared database, Web
- Retrieval
  - Paper, spreadsheet, GIS

Informatics is the discipline merging subject knowledge, information management, and information technology

Data Standards

Vocabulary 

Database fields and elements

Data exchange

National HPAI Early Detection Data System
Data Standards

- Compliant with NAHLN standards
  - SNOMED; LOINC; HL7
- Set of 20 core data fields and elements
  - Capability of holding additional data
- Semi-generic terms
  - Lumping capability

National HPAI Early Detection Data System

Proposed Core Data Fields

Data Field Name	Standardized Choices
Identification Type	Band; Toe tag; Wing tag; Hunter ID; Bag; Jar; Not provided; Other, followed by free text description
ID Number	Free text (e.g. band number, agency number)
Species	Species name is selected from a standardized drop down list of common names, with their AOU codes
Sex	Male; Female; Intersex; Not provided; Undetermined

National HPAI Early Detection Data System

Login:

Password:

Login

Please fill out this form to obtain a username and password

This site developed and maintained by the NBII Wildlife Disease Information Node and the USGS National Wildlife Health Center

Some data held within are fictional developed for demonstration purposes only

National HPAI Early Detection Data System

Wildlife Disease Information Node

NBII Home

- About NBII
- Current Biological Issues
- Biological Disciplines
- Geographic Perspectives
- Teacher Resources
- Data & Information Resources
- Search
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WDIN Home | Wildlife Disease | Web Resources | Maps & Data | CWD Data Clearinghouse | Com

Enter Sear

Avian Influenza map [Search]

Food and Agriculture Organization (FAO) web-page - EMPRESMaps: Bi-weekly Avian Influenza Maps

Food and Agriculture Organization of the United Nations

EMPRESMaps bi-weekly avian influenza maps presented by the Food and Agriculture Organization of the United Nations. Maps data back to February 2004. Different views available from broad eastern hemisphere maps to detailed country maps.

Maps

Keywords: Human health Pigs Poultry Wildlife disease

Food and Agriculture Organization (FAO) - Special Report - Wild birds and Avian Influenza

Food and Agriculture Organization of the United Nations

Describes the potential role of wild birds in the transmission of avian influenza. Control measures against the spread of H5N1 are outlined. A map of the major flyways of migratory birds is also included.

Issue Overviews

Keywords: Birds Disease spread Flyways Migration Wildlife

Avian Influenza Maps - A Compiled List

National Wildlife Health Center (U.S.)

Lists from various source (e.g. FAO and WHO) maps of avian influenza outbreaks and distribution.

Maps

Keywords: Animal health Disease spread Human health Outbreaks

National HPAI Early Detection Data System

- Main Menu
- Data Entry
- Browse Data
- Search Data
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- Send Feedback

Thank you for taking time to enter feedback about the Avian Influenza Data Entry System. Your feedback will be reviewed and possibly incorporated into future versions of the system. THANK YOU!!

Comments:

What a great idea!

Save Feedback

National HPAI Early Detection Data System

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Location Information

Coordinate System: Select...
Latitude:
Longitude:
State collected: Select State
County collected: Select County
Place Name

Sample Information

Select sample type: Select...
Date Collected:
Diagnostic Lab: Select...
Date Submitted to lab:

Save

January 2006

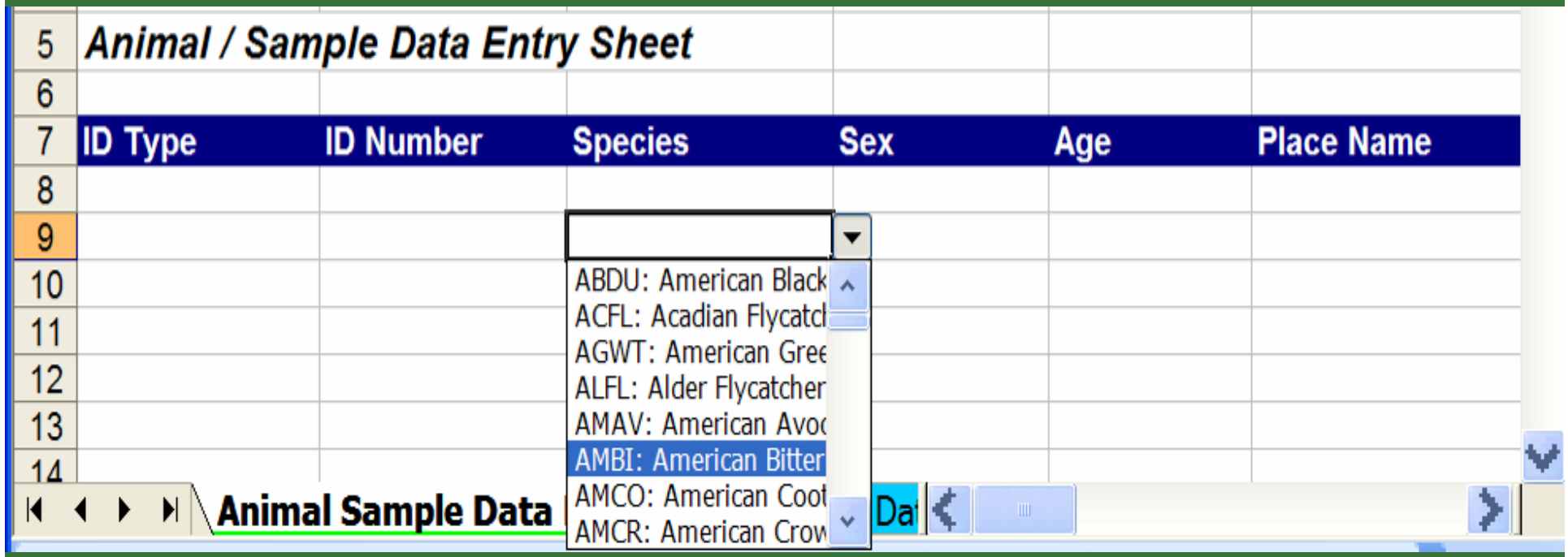
Mo	Tu	We	Th	Fr	Sa	Su
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

Next 10 Last 10

Previously Entered

See Details	Animal ID	Species	Sex	Date Collected	Age	Agency ID
	1129	BLBR: Black Brant	Male	7/23/05	After Hatch Year	134798812
	1128	BLBR: Black Brant	Female	7/23/05	After Hatch Year	134798833
	1127	BLBR: Black Brant	Male	7/23/05	After Hatch Year	361719300
	1126	BLBR: Black Brant	Female	7/23/05	After Hatch Year	134798853
	1125	BLBR: Black Brant	Male	7/23/05	After Hatch Year	134798828
	1124	BLBR: Black Brant	Female	7/23/05	After Hatch Year	134798807
	1123	BLBR: Black Brant	Female	7/23/05	After Hatch Year	134798801
	1122	BLBR: Black Brant	Male	7/23/05	After Hatch Year	134798844
	1121	BLBR: Black Brant	Male	7/23/05	After Hatch Year	134798858
	1120	BLBR: Black Brant	Female	7/23/05	After Hatch Year	134798811

MS Excel Data Entry Form



Wildlife Disease Information Node

Optical Mark-Read

Sample	0000 0000 001	Institution Code		Site Code	N W H C

Date: (MM/DD/YYYY)	/ /	2 0	Time: Military HH:MM	1 4 : 2 5	Collector Initials:	

Animal Information

Species AOU#							
Identification Method	U	S	O	H		ID:	
Collection Reason	b	k	s	d	o	Other	
Age Class	l	n	u	o		Other	

Morbidity / Mortality Reporting

National HPAI Early Detection Data System

First Name:

Last Name:

Address:

Apt, Suite:

City

State: Select...

Species: Select...

Gender: Female

Reason for collection: Roadkill

Location: Latitude: 61.2578 Longitude: -150.7701

Map created by NBII Wildlife Disease Information Node 2006

Wildlife Disease Information Node

Shipment Tracking

Enter Shipping Information

Diagnostic Lab Sent Animal Health Diagnostic Laboratory

Number of Samples

Shipping method Select...

Tracking Number:

Date Sent:

Est. Arrival Date:

Save Information

Previously Entered Shipments

Edit	Estimated # Samples	Tracking #	Date Sent	Approx Arrival Date	Diagnostic Lab	Entered By	Arrived?
Mark as arrived	24	FedEx Tracking	01/06/2006	01/09/2006	USGS National Wildlife Health Center	Megan Hines	true
Mark as arrived	100	UPS Tracking	01/17/2006	01/21/2006	USGS National Wildlife Health Center	Megan Hines	
Mark as arrived	1	FedEx Tracking	01/17/2006	01/19/2006	USGS National Wildlife Health Center	Guest Guest	true

National HPAI Early Detection Data System

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Browse your data:

Use the options below to filter the data

Species: Select...

Sex:

Age Class:

County/Borough collected:

State:

Place Name:

Sample Type:

Test Type: Select...

Test Results: Select...

Collecting Agency: Select...

Search Records

Select...
All species
AMWI: American Wigeon
BLBR: Black Brant
BLTU: Black Turnstone
DUNL: Dunlin
EMGO: Emperor Goose
HEGU: Herring Gull
NOPI: Northern Pintail
ROSA: Rock Sandpiper
SHAS: Sharp-tailed Sandpiper
STEI: Stellers Eider
WESA: Western Sandpiper

National HPAI Early Detection Data System

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Search Records

Search by band #, Animal ID, or Specimen ID

1221-47659 Search!

Matching records:

Detail Info	Band #	Specimen ID	Sex	Age Class	Species	Collection Date	County	Place Name	State
	1221-47659	4996136	Not Provided	Hatch Year	DUNL: Dunlin	8/14/2005	Wade Hampton	Tutakoke Camp, YKD, Alaska	Alaska

National HPAI Early Detection Data System

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Animal Information:

Animal ID	Common Name	Sex	Age Class	Agency ID	County	State	Location	Agency	Add Sample
729	DUNL: Dunlin	Not Provided	Hatch Year	1221-47659	Wade Hampton	AK	Tutakoke Camp, YKD, Alaska	USGS Alaska Science Center	⊞

Sample Information:

Animal ID	Sample ID	Agency ID	Date Collected	Sample Type	Diagnostic Lab	Add Test
729	650	4996136		Cloacal Swab	National Wildlife Health Center	⊞

Test Information:

Animal ID	Sample ID	Test ID	Test Type	Test Results
729	650	454	Hemagglutination	Positive
729	650	589	RTPCR (AI)	Positive
729	650	590	Serological Sub-typing	In Progress
729	650	591	RTPCR (H5)	Negative

National HPAI Early Detection Data System

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Sample Information:

Animal ID	Sample ID	Sample Type	Collection Date	Lab Submitted	Date Submitted	Animal Detail
729	650	Cloacal Swab		National Wildlife Health Center		

Test Information:

Test Requested: Select...

Date Tested

Test Results Select...

Diagnosis: Select...

If Other:

Save Test

Test Information:

Test ID	Test Type	Test Results	Test Date
454	Hemagglutination	Positive	
589	RTPCR (AI)	Positive	
590	Serological Sub-typing	In Progress	
591	RTPCR (H5)	Negative	

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Reports/Maps
Reports
Maps

National HPAI Early Detection Data System

Samples by submitter/agency/location

Total samples	Location	Submitter	Agency
10	Izembek Izembek Lagoon	Kristine Sowl	United States Fish & Wildlife Service (USFWS) Alaska

Sample Count/Species

# Samples	Species
1	AMWI: American Wigeon
228	BLBR: Black Brant
4	BLTU: Black Turnstone
77	DUNL: Dunlin
88	EMGO: Emperor Goose
27	STEI: Stellers Eider
6	WESA: Western Sandpiper

Total samples

Number of Samples	Sample Type
616	Cloacal Swab

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Premade Maps

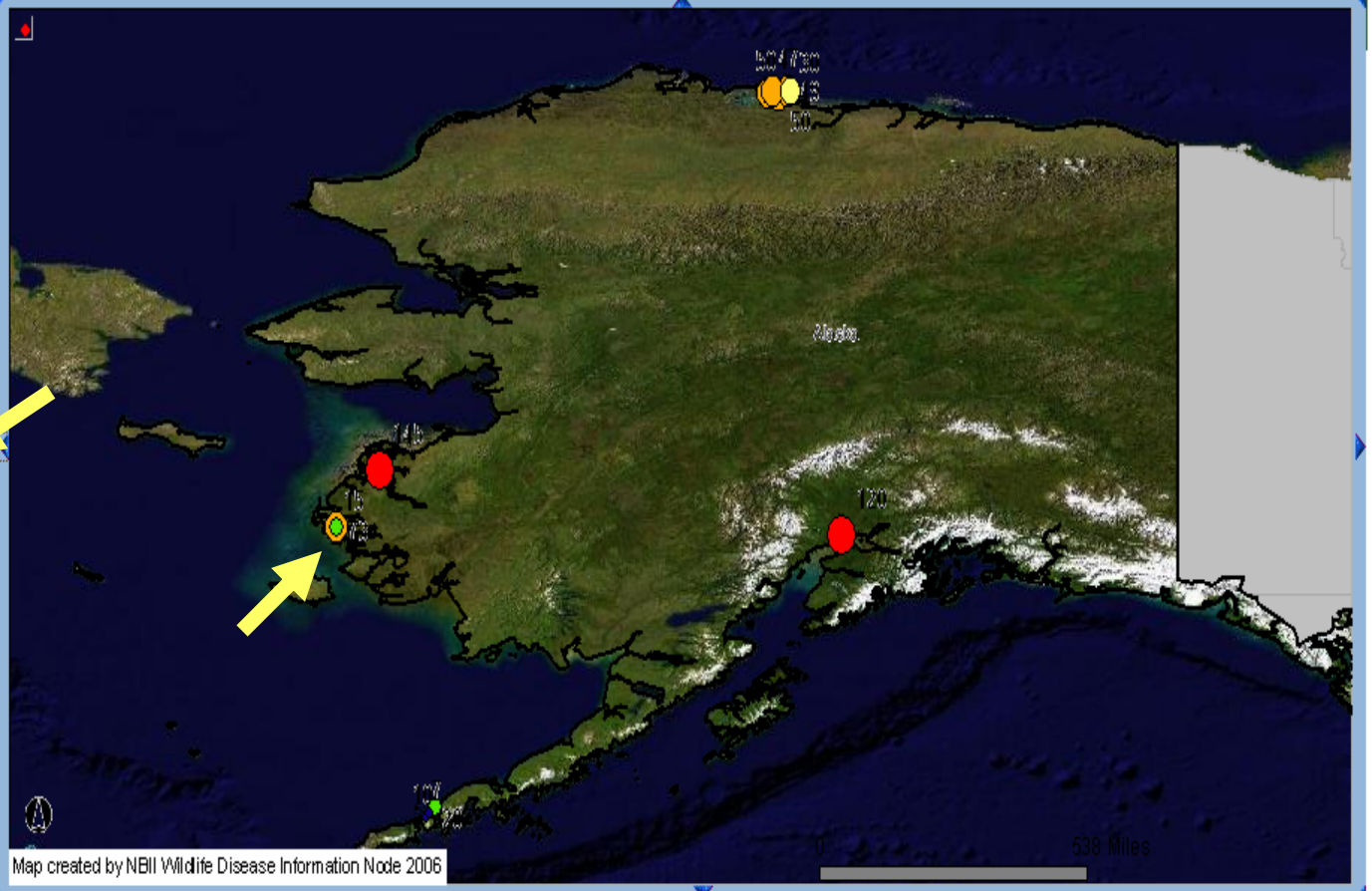
- Number of Samples/Location (Graduated Symbol)
- Location by Agency
- Species Sampled

Interactive Map

- Explore Interactive Map

National HPAI Early Detection Data System

zoom in
zoom out
full extent
zoom active
zoom last
pan
identify
clear selected
find place
toggle legend
main menu



Map created by NBII Wildlife Disease Information Node 2006

LAYERS | toggle legend

Topographic Maps - Terraserver

MODIS Satellite Imagery

Legend

Samples By Location

Number of samples

- 7 - 10
- 11 - 20
- 21 - 30
- 31 - 73
- 74 - 145

Samples By Location

Rec	records	INST	PERSONID	FIRSTNAME	LASTNAME	PlaceName	LatitudeEasting
1	73	USGS Alaska Science Center	38	Craig	Ely	Babtuk	61.4483
2	15	USGS Alaska Science Center	38	Craig	Ely	N Kashunuk	61.4483

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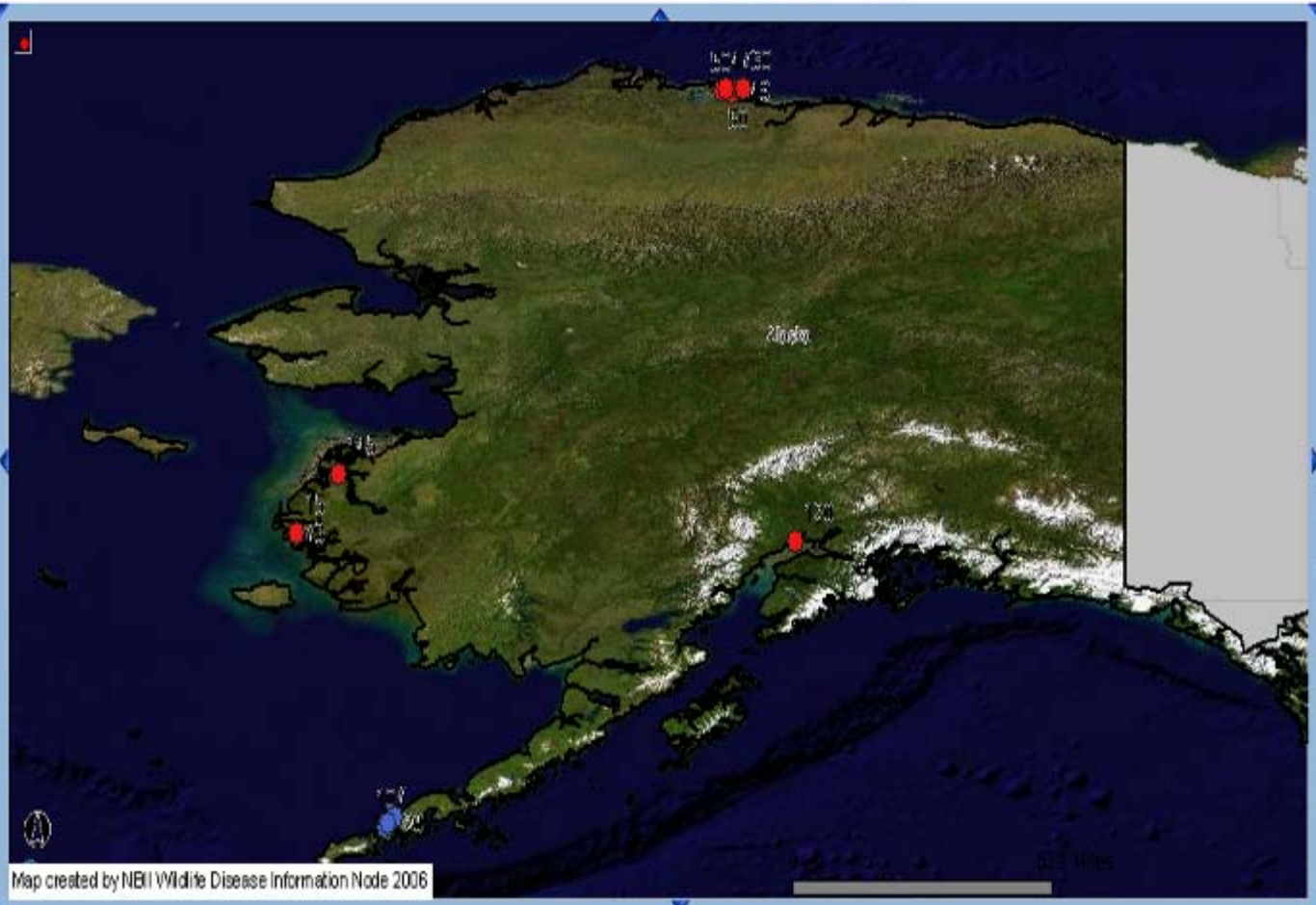

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toggle legend

Topographic Maps -

MODIS Satellite

Legend

Locations By Agency

Institution Name

- USGS Alaska Science Cente
- United States Fish and Wildli

Locations By Agency

Rec	records	INST	PERSONID	FIRSTNAME	LASTNAME	PlaceName	LatitudeEasting	LongitudeNorthing	#SHAPE#
1	50	USGS Alaska Science Center	40	Paul	Flint	National Petroleum Reserve Alaska	70.6916	-152.6268	[point]
2	50	USGS Alaska Science Center	40	Paul	Flint	National Petroleum Reserve Alaska	70.7542	-152.9168	[point]
3	47	USGS Alaska Science Center	40	Paul	Flint	National Petroleum Reserve Alaska	70.7888	-152.7977	[point]

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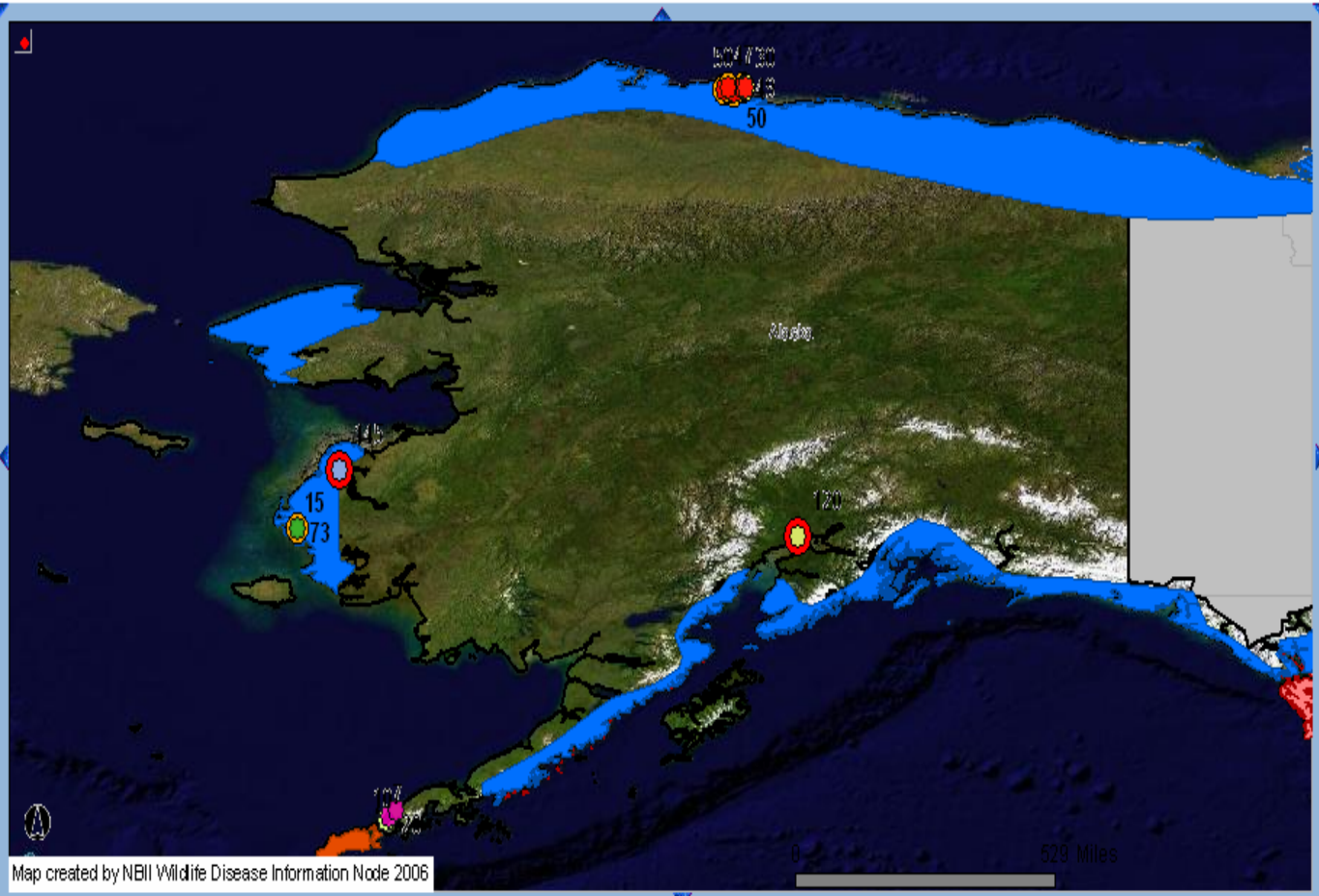

Map created by NBII Wildlife Disease Information Node 2006

LAYERS | toggle legend

Topographic Maps - Terr

MODIS Satellite Ima

Legend

Species Sampled

ANIMALSPECIES

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- ROSA: Rock Sandpiper
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- STEI: Stellers Eider
- WESA: Western Sandpip

Samples By Location

Number of samples

Species Sampled

Rec	record_count	LatitudeEasting	LongitudeNorthing	INST	PlaceName	ANIMALSPECIES	#SHAPE#
1	50	70.6916	-152.6268	USGS Alaska Science Center	National Petroleum Reserve Alaska	BLBR: Black Brant	[point]
2	47	70.7888	-152.7977	USGS Alaska Science Center	National Petroleum Reserve Alaska	BLBR: Black Brant	[point]

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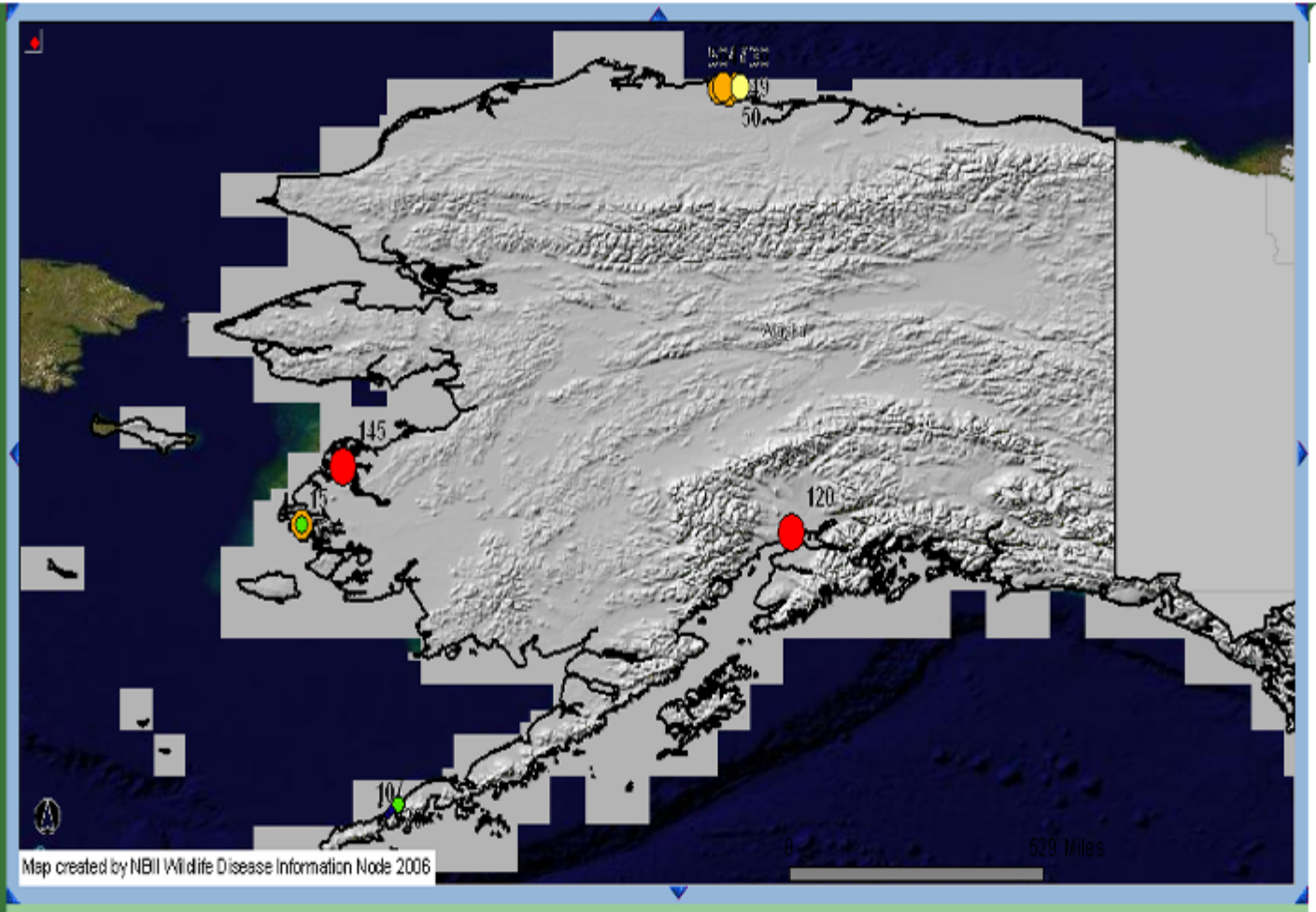

LAYERS
toggle legend

Topographic Maps - Terraserver

AK NED Shaded Relief

MODIS Satellite Imagery

Legend

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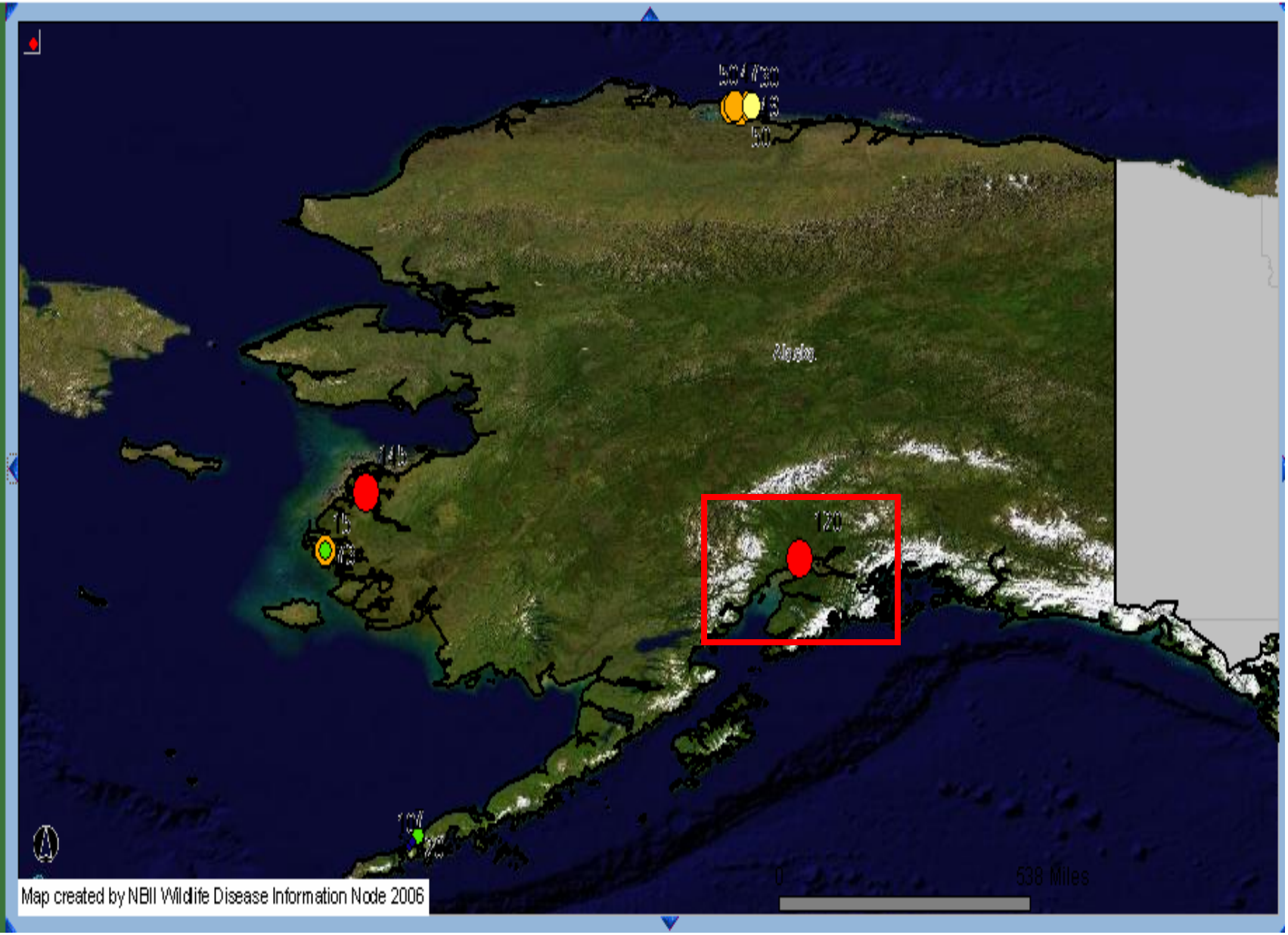

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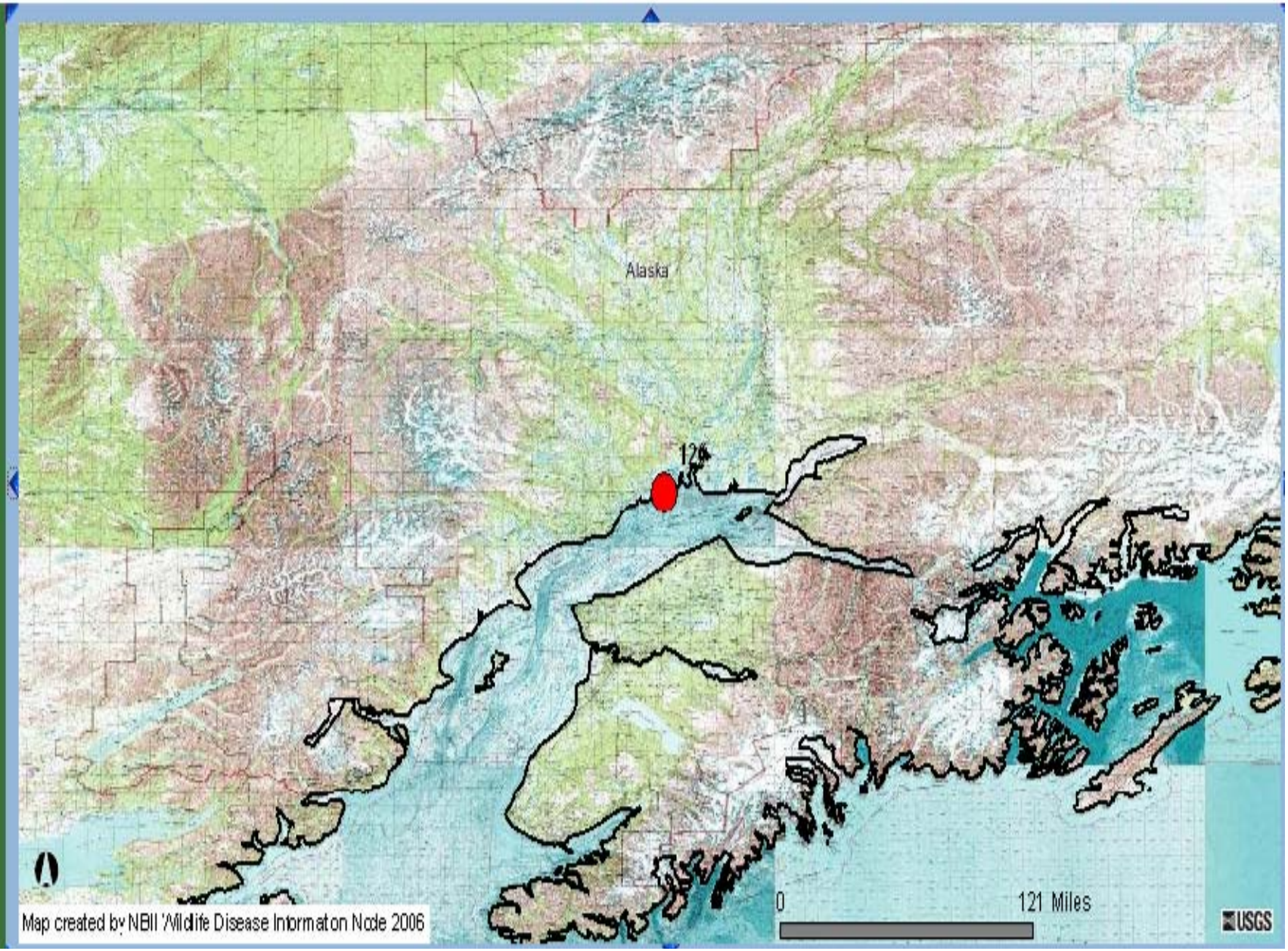

Map created by NBII Wildlife Disease Information Node 2006

Summary

- WDIN data system is designed to facilitate inter-agency collaboration
- Feedback encouraged to help system meet needs and changing demands

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