WRST Caribou Monitoring Database Application

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About

The WRST Caribou Monitoring Database Application provides a user friendly interface for entering, importing and summarizing data about the Mentasta and

Chisana caribou herds. The back end database uses a Microsoft SQL Server and the front end application is built in Microsoft Visual Basic .NET.

Biologists collect information about the herds during aerial composition count, population estimate and radiotracking surveys. Data from the surveys is then entered into the database directly or assembled into spreadsheets and then imported. Both the database and the application perform some automated quality control checks. Other checks must be done by a trained biologist. Once quality of the data is as high as possible and all defects are documented the WRST biologist certifies the dataset and it can then be analyzed.

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Data entry

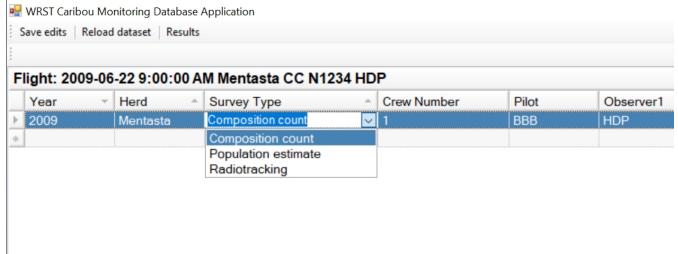
Process

Data entry consists of three main tasks:

- 1. Enter details about a survey flight
- 2. Enter or import caribou group waypoint and group composition data
- Link any GPS collared animals detected in the groups to the Alaska Region's Animal Movement GPS collar database

Enter details about a survey flight

- 1. Start the application
- 2. Enter flight details into the Flights grid (See Appendix A: Data definitions for details about each field).



- 3.
- 4. Ensure all required data is entered.
- 5. Save the record

Enter or import caribou group waypoint and group composition data

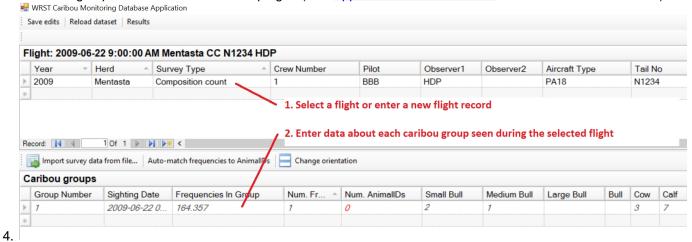
Caribou groups are spatial points recorded during survey flights where caribou groups were spotted. To enter caribou groups you must first select the flight from which the group was observed, or enter a new flight to serve as the parent record.

Manual data entry

- 1. Start the application
- 2. Enter a new flight record or select an existing flight record. The group(s) you enter must be associated with a

flight.

3. Enter the group data in the Caribou Groups grid (See Appendix A: Data definitions for details about each field).



Importing data

Link any GPS collared animals detected in the groups to the Alaska Region's Animal Movement GPS collar database

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Appendix A: Data definitions

Table	Column	ColumnDescription
dbo.Captures	AdditionalDrugs	Additional drugs
dbo.Captures	Anesthetic	Immobilizing anesthetic. Carfentanil, Thiafent
dbo.Captures	AnestheticConcentration_mg_ml	Concentration of anesthetic (mg/ml)
dbo.Captures	AnestheticDosage_mg	mg of anesthetic (per dart)
dbo.Captures	AnestheticDosage_ml	ml of anesthetic (per dart)
dbo.Captures	AnestheticReversal	Drug used to reverse effects of anesthetic
dbo.Captures	$An esthetic Reversal Concentration_mg_ml$	Concentration of anesthetic reversal in mg/m
dbo.Captures	AnestheticReversalDosage_mg	mg of anesthetic reversal
dbo.Captures	AnestheticReversalDosage_ml	ml of anesthetic reversal given
dbo.Captures	AnestheticReversalRoute	Route of anesthetic reversal dose (IV, SQ, IM)
dbo.Captures	AnestheticReversalTime	Time (24hr) anesthetic reversal administered
dbo.Captures	AnimalID	Foreign key to the Caribou table
dbo.Captures	BloodSampleGreen	Plasma
dbo.Captures	BloodSamplePurple	Whole blood
dbo.Captures	BloodSampleRed	Serum
dbo.Captures	BodyCondition	Fat, Good, Poor, Emaciated
dbo.Captures	BodyLength	Body length in centimeters
dbo.Captures	CaptureDate	Date the caribou was captured
dbo.Captures	CaptureID	Primary key
dbo.Captures	CaptureLatitude	Latitude where the caribou was captured (De
dbo.Captures	CaptureLongitude	Longitude where the caribou was captured (D
dbo.Captures	CertificationDate	Date the entirety of the data collected during
dbo.Captures	CertificationLevel	Certification process level. Raw, Provisional, A
dbo.Captures	CertifiedBy	Person certifying the data
dbo.Captures	ChestGirth	Chest girth in centimeters

dbo.Captures Comments Comments

dbo.Captures Crew Names of crew members

dbo.Captures DartLocation Description of where the dart hit

dbo.Captures DrugEffect 1-5 (Light --> Heavy

dbo.CapturesEstimatedAgeEstimated age based on tooth weardbo.CapturesFinalBodyTemperatureFinal body temperature (Centigrade)dbo.CapturesFinalBodyTemperatureTimeFinal body temperature time (24hr)

dbo.CapturesFrequencyCollar frequencydbo.CapturesGeneralLocationGeneral location

dbo.CapturesHindfootLengthHindfoot measurement in centimeters.dbo.CapturesInitialBodyTempInitial body temperature (Centigrade)dbo.CapturesInitialBodyTempTimeInitial body temperature time (24hr)

dbo.Captures Jaw Jaw length in centimeters.

dbo.Captures Lactating Was the caribou lactating? True/False

dbo.CapturesMetatarsusLengthMetatarsus measurement in centimetersdbo.CapturesNeckCircumferenceNeck circumference in centimeters

dbo.CapturesNumHitsNumber of dart hitsdbo.CapturesNumMissesNumber of dart missesdbo.CapturesOldFrequencyFormer frequency

dbo.Captures OldVisualCollar Former visual collar code

dbo.Captures ProjectID ProjectID associated with the caribou in the A

dbo.CapturesProtocolIRMAReferenceIRMA Data Store reference code for the protocoldbo.CapturesProtocolVersionVersion of the monitoring protocol used for the

dbo.CapturesRecordInsertedByUsername of person who inserted the recorddbo.CapturesRecordInsertedDateDatetime the record was inserteddbo.CapturesSedativeSedative given during immobilization

dbo.Captures SedativeConcentration_mg_ml Concentration of sedative (mg/ml)

dbo.CapturesSedativeDosage_mgMg of sedative (per dart)dbo.CapturesSedativeDosage_mlml of sedative (per dart)

dbo.CapturesSedativeReversalDrug used to reverse effects of sedativedbo.CapturesSedativeReversalConcentration_mg_mlConcentration of sedative reversal in mg/ml

dbo.CapturesSedativeReversalDosage_mgmg of sedative reversaldbo.CapturesSedativeReversalDosage_mlml of sedative reversal given

dbo.Captures SedativeReversalRoute Route of sedative reversal dose (IV, SQ, IM)

dbo.CapturesSedativeReversalTimeTime (24hr) sedative reversal givendbo.CapturesSerialNumberSerial number of radiocollar

dbo.Captures Sex Sex. M/F

dbo.CapturesShooterName of the person who shot the caribou.dbo.CapturesSOPNumberStandard Operating Procedure that guided thdbo.CapturesSOPVersionVersion of the Standard Operating Proceduredbo.CapturesTimeAnimalDownTime animal subdued (24hr time format).

dbo.CapturesTimeAnimalDownTime animal subdued (24hr time format).dbo.CapturesTimeFirstHitBounceTime of the first hit/bounce (24hr time format).

dbo.Captures TimeMobile Time (24hr) caribou became mobile

dbo.Captures TimeSecordHitBounce Time of the second hit/bounce (24hr time for

dbo.Captures TimeStanding Time (24hr) caribou stood up.

dbo.Captures TimeStartChase Start of the chase (24hr time format).

dbo.Captures TimeThirdHitBounce Time of the third hit/bounce (24hr time form dbo.Captures TimeVisibleEffect Time of first visible effect (24hr time format).

Timestamp. Access front-end needs this to a

dbo.Captures TS

dbo.Captures VisualCollar Visual collar color and number.

dbo.Captures Weight_Kg Weight in kilograms

dbo.Captures WithCalf Was the caribou with a calf? True/False.

dbo.CollaredAnimalsInGroups AnimalID from Animal Movements database AnimalID

Comment dbo.CollaredAnimalsInGroups

dbo.CollaredAnimalsInGroups **EID** Caribou group identifier. Foreign key to the Su

dbo.CollaredAnimalsInGroups RecordInsertedBy Username of person who inserted the record dbo.CollaredAnimalsInGroups RecordInsertedDate Datetime the record was inserted

dbo.SurveyFlights AircraftType Aircraft type dbo.SurveyFlights CrewNumber Crew number

dbo.SurveyFlights **FlightID** Primary key. User defined unique key.

dbo.SurveyFlights Herd Chisana or Mentasta

dbo.SurveyFlights IsFollowUpFlight True if the flight was post-survey to find carib

dbo.SurveyFlights **Notes Notes** dbo.SurveyFlights Name of the observer Observer1 dbo.SurveyFlights Observer2 Second (backseat) observer

dbo.SurveyFlights Pilot Name of the pilot

dbo.SurveyFlights RecordInsertedBy Username of person who inserted the record Datetime the record was inserted dbo.SurveyFlights RecordInsertedDate

SnowConditions Snow conditions dbo.SurveyFlights

dbo.SurveyFlights **SOPNumber** Standard Operating Procedure that guided th SOPVersion dbo.SurveyFlights Version of the Standard Operating Procedure

dbo.SurveyFlights SpotterPlanePilot Name of the spotter plane pilot dbo.SurveyFlights SpotterPlaneTailNo Tail number of spotter plane dbo.SurveyFlights SpotterPlaneType Type of spotter plane used

Survey type. PE=Population Estimate, CC=Con dbo.SurveyFlights SurveyType dbo.SurveyFlights TailNo Aircraft tail number

dbo.SurveyFlights **TimeDepart** Date and time the flight departed dbo.SurveyFlights TimeReturn Date and time the flight returned

dbo.SurveyFlights TS

Timestamp. Access front-end needs this to a dbo.SurveyFlights WeatherConditions Weather conditions encountered during the s

dbo.SurveyFlights Year Year

NULL dbo.Surveys Accuracy Adult Older studies sometimes only counted adults dbo.Surveys

dbo.Surveys Bull Mentasta herd. Number of obvious bulls.

Number of calves dbo.Surveys Calf

dbo.Surveys CalvesAtHeel Calves at heel. Yes/No (1/0)

dbo.Surveys CertificationDate Date the entirety of the data collected during dbo.Surveys CertificationLevel Certification process level. Raw, Provisional, A

dbo.Surveys CertifiedBy Person certifying the data

dbo.Surveys Comment Comment dbo.Surveys Cow Number of cows

Distended udders. Yes/No (1/0) DistendedUdders dbo.Surveys

dbo.Surveys **EID** Primary key

Flight identifier. Foreign key to PopulationSur dbo.Surveys FlightID Comma separated list of frequencies detected dbo.Surveys FrequenciesInGroup

dbo.Surveys GroupNumber Group number LargeBull Chisana herd. Number of large bulls dbo.Surveys

Lat Latitude. WGS1984 GCS dbo.Surveys Longitude. WGS1984 GCS dbo.Surveys Lon Marked. 1=True, 0=False dbo.Surveys Marked

MediumBull Chisana herd. Number of medium bulls dbo.Surveys

dbo.Surveys Mode **NULL**

dbo.Surveys Out In survey area? I = In, O = Out. All animals are

dbo.Surveys RecordInsertedBy Username of person who inserted the record

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dbo.SurveysRecordInsertedDateDatetime the record was inserteddbo.SurveysRetainedAntlerRetained antler(s). Yes/No (1/0)

dbo.Surveys SearchArea Alaska, Yukon

dbo.SurveysSeenWas the group seen?dbo.SurveysSightingDateDate of sighting

dbo.Surveys SmallBull Chisana herd. Number of small bulls

dbo.Surveys SourceFilename Filename of the source data if imported rather

Timestamp. Access front-end needs this to a

dbo.Surveys TS

dbo.Surveys WaypointName Name of the GPS waypoint

dbo.sysdiagramsdefinitionNULLdbo.sysdiagramsdiagram_idNULLdbo.sysdiagramsnameNULLdbo.sysdiagramsprincipal_idNULLdbo.sysdiagramsversionNULL

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