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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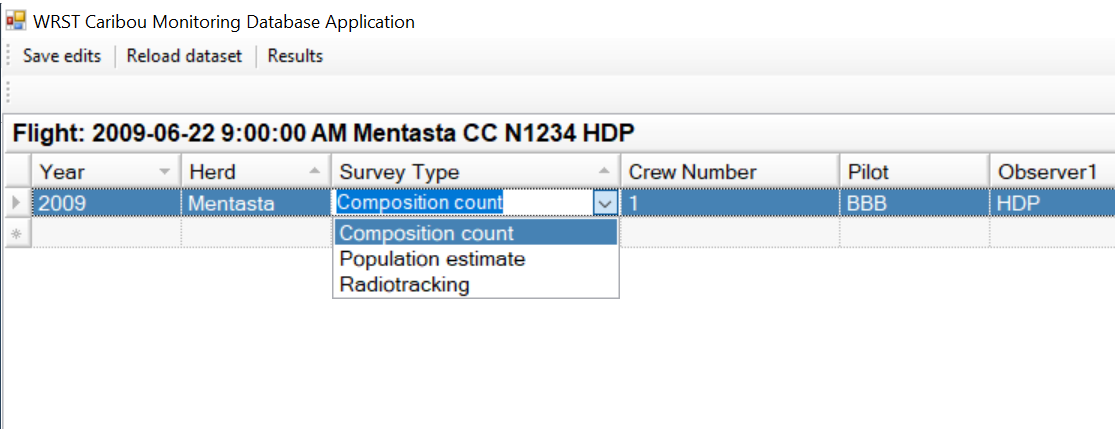
**Data entry**

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

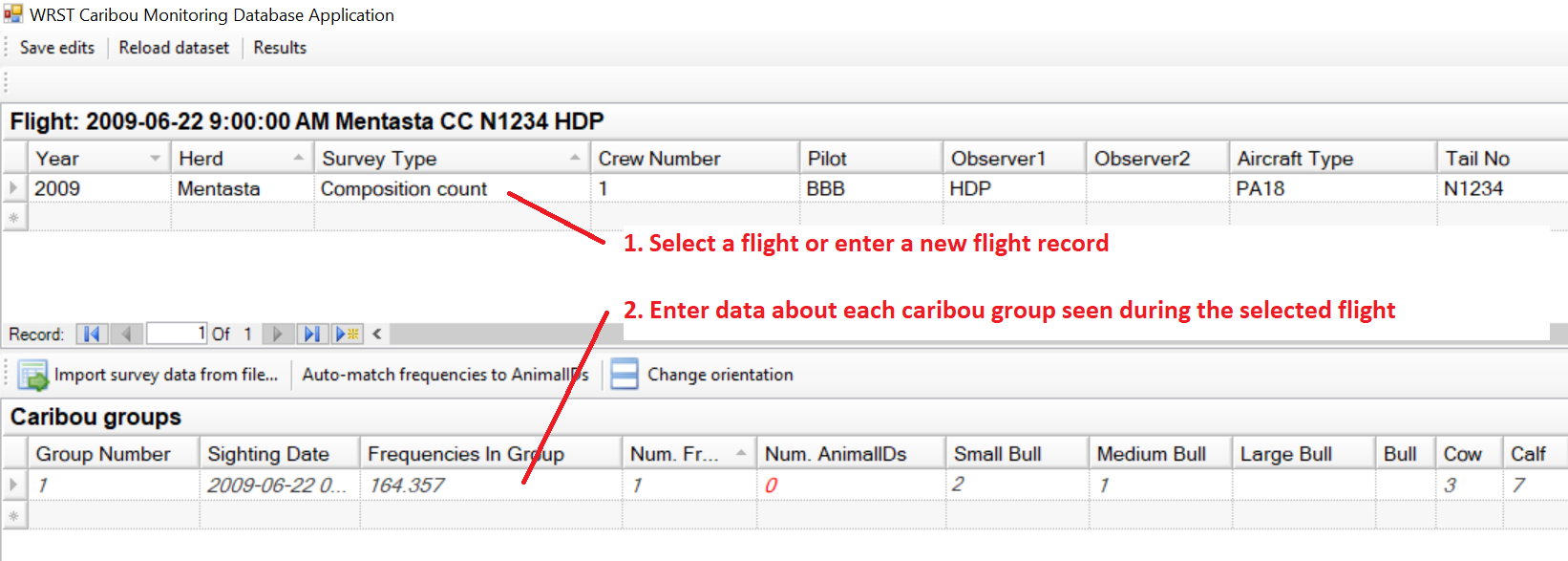
# Enter details about a survey flight

1. Start the application
2. Enter flight details into the Flights grid (See [Appendix A: Data definitions](#_topic_AppendixADatadefinitions) 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](#_topic_AppendixADatadefinitions) for details about each field).
4. 

## 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, Thiafentanil |
| 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 | AnestheticReversalConcentration\_mg\_ml | Concentration of anesthetic reversal in mg/ml |
| 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 (Decimal degrees. Geographic coordinates, WGS84 datum). |
| dbo.Captures | CaptureLongitude | Longitude where the caribou was captured (Decmial degrees. Geographic coordinates, WGS84 datum). |
| dbo.Captures | CertificationDate | Date the entirety of the data collected during the survey were certified |
| dbo.Captures | CertificationLevel | Certification process level. Raw, Provisional, Accepted |
| 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.Captures | EstimatedAge | Estimated age based on tooth wear |
| dbo.Captures | FinalBodyTemperature | Final body temperature (Centigrade) |
| dbo.Captures | FinalBodyTemperatureTime | Final body temperature time (24hr) |
| dbo.Captures | Frequency | Collar frequency |
| dbo.Captures | GeneralLocation | General location |
| dbo.Captures | HindfootLength | Hindfoot measurement in centimeters. |
| dbo.Captures | InitialBodyTemp | Initial body temperature (Centigrade) |
| dbo.Captures | InitialBodyTempTime | Initial body temperature time (24hr) |
| dbo.Captures | Jaw | Jaw length in centimeters. |
| dbo.Captures | Lactating | Was the caribou lactating? True/False |
| dbo.Captures | MetatarsusLength | Metatarsus measurement in centimeters |
| dbo.Captures | NeckCircumference | Neck circumference in centimeters |
| dbo.Captures | NumHits | Number of dart hits |
| dbo.Captures | NumMisses | Number of dart misses |
| dbo.Captures | OldFrequency | Former frequency |
| dbo.Captures | OldVisualCollar | Former visual collar code |
| dbo.Captures | ProjectID | ProjectID associated with the caribou in the Animal Movements database |
| dbo.Captures | ProtocolIRMAReference | IRMA Data Store reference code for the protocol followed for this record's data collection effort. |
| dbo.Captures | ProtocolVersion | Version of the monitoring protocol used for the survey flight |
| dbo.Captures | RecordInsertedBy | Username of person who inserted the record |
| dbo.Captures | RecordInsertedDate | Datetime the record was inserted |
| dbo.Captures | Sedative | Sedative given during immobilization |
| dbo.Captures | SedativeConcentration\_mg\_ml | Concentration of sedative (mg/ml) |
| dbo.Captures | SedativeDosage\_mg | Mg of sedative (per dart) |
| dbo.Captures | SedativeDosage\_ml | ml of sedative (per dart) |
| dbo.Captures | SedativeReversal | Drug used to reverse effects of sedative |
| dbo.Captures | SedativeReversalConcentration\_mg\_ml | Concentration of sedative reversal in mg/ml |
| dbo.Captures | SedativeReversalDosage\_mg | mg of sedative reversal |
| dbo.Captures | SedativeReversalDosage\_ml | ml of sedative reversal given |
| dbo.Captures | SedativeReversalRoute | Route of sedative reversal dose (IV, SQ, IM) |
| dbo.Captures | SedativeReversalTime | Time (24hr) sedative reversal given |
| dbo.Captures | SerialNumber | Serial number of radiocollar |
| dbo.Captures | Sex | Sex. M/F |
| dbo.Captures | Shooter | Name of the person who shot the caribou. |
| dbo.Captures | SOPNumber | Standard Operating Procedure that guided the survey flight |
| dbo.Captures | SOPVersion | Version of the Standard Operating Procedure that guided the survey flight |
| dbo.Captures | TimeAnimalDown | Time animal subdued (24hr time format). |
| dbo.Captures | TimeFirstHitBounce | Time 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 format). |
| 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 format). |
| dbo.Captures | TimeVisibleEffect | Time of first visible effect (24hr time format). |
| dbo.Captures | TS | Timestamp. Access front-end needs this to avoid write conflict errors. No other purpose. |
| 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 | AnimalID from Animal\_Movements database |
| dbo.CollaredAnimalsInGroups | Comment | Comment |
| dbo.CollaredAnimalsInGroups | EID | Caribou group identifier. Foreign key to the Surveys table. |
| 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 caribou missed during a population survey, otherwise False. |
| dbo.SurveyFlights | Notes | Notes |
| dbo.SurveyFlights | Observer1 | Name of the observer |
| dbo.SurveyFlights | Observer2 | Second (backseat) observer |
| dbo.SurveyFlights | Pilot | Name of the pilot |
| dbo.SurveyFlights | RecordInsertedBy | Username of person who inserted the record |
| dbo.SurveyFlights | RecordInsertedDate | Datetime the record was inserted |
| dbo.SurveyFlights | SnowConditions | Snow conditions |
| dbo.SurveyFlights | SOPNumber | Standard Operating Procedure that guided the survey flight |
| dbo.SurveyFlights | SOPVersion | Version of the Standard Operating Procedure that guided the survey flight |
| 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 |
| dbo.SurveyFlights | SurveyType | Survey type. PE=Population Estimate, CC=Composition Count, RT=Radiotracking |
| 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 avoid write conflict errors. No other purpose. |
| dbo.SurveyFlights | WeatherConditions | Weather conditions encountered during the survey |
| dbo.SurveyFlights | Year | Year |
| dbo.Surveys | Accuracy | NULL |
| dbo.Surveys | Adult | Older studies sometimes only counted adults/calves |
| dbo.Surveys | Bull | Mentasta herd. Number of obvious bulls. |
| dbo.Surveys | Calf | Number of calves |
| dbo.Surveys | CalvesAtHeel | Calves at heel. Yes/No (1/0) |
| dbo.Surveys | CertificationDate | Date the entirety of the data collected during the survey were certified |
| dbo.Surveys | CertificationLevel | Certification process level. Raw, Provisional, Accepted |
| dbo.Surveys | CertifiedBy | Person certifying the data |
| dbo.Surveys | Comment | Comment |
| dbo.Surveys | Cow | Number of cows |
| dbo.Surveys | DistendedUdders | Distended udders. Yes/No (1/0) |
| dbo.Surveys | EID | Primary key |
| dbo.Surveys | FlightID | Flight identifier. Foreign key to PopulationSurveyFlights table |
| dbo.Surveys | FrequenciesInGroup | Comma separated list of frequencies detected in the group. |
| dbo.Surveys | GroupNumber | Group number |
| dbo.Surveys | LargeBull | Chisana herd. Number of large bulls |
| dbo.Surveys | Lat | Latitude. WGS1984 GCS |
| dbo.Surveys | Lon | Longitude. WGS1984 GCS |
| dbo.Surveys | Marked | Marked. 1=True, 0=False |
| dbo.Surveys | MediumBull | Chisana herd. Number of medium bulls |
| dbo.Surveys | Mode | NULL |
| dbo.Surveys | Out | In survey area? I = In, O = Out. All animals are accounted for whether in unit or not. |
| dbo.Surveys | RecordInsertedBy | Username of person who inserted the record |
| dbo.Surveys | RecordInsertedDate | Datetime the record was inserted |
| dbo.Surveys | RetainedAntler | Retained antler(s). Yes/No (1/0) |
| dbo.Surveys | SearchArea | Alaska, Yukon |
| dbo.Surveys | Seen | Was the group seen? |
| dbo.Surveys | SightingDate | Date of sighting |
| dbo.Surveys | SmallBull | Chisana herd. Number of small bulls |
| dbo.Surveys | SourceFilename | Filename of the source data if imported rather than keypunched. |
| dbo.Surveys | TS | Timestamp. Access front-end needs this to avoid write conflict errors. No other purpose. |
| dbo.Surveys | WaypointName | Name of the GPS waypoint |
| dbo.sysdiagrams | definition | NULL |
| dbo.sysdiagrams | diagram\_id | NULL |
| dbo.sysdiagrams | name | NULL |
| dbo.sysdiagrams | principal\_id | NULL |
| dbo.sysdiagrams | version | NULL |

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