Building the Technical Capacity of the Hawaii Island Invasive Species Committees: Database Enhancements and Standard Reporting

Final Report for HISC Contract 54965

October, 2007

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This project involves the use of Hawaii Invasive Species Council (HISC) Research and Technology Program funds to enhance the existing database systems of the Oahu, Kauai, Big Island and Molokai Invasive Species Committees (ISCs) to allow for the tracking of vertebrate and invertebrate survey and control work; and the facilitation and tracking of invasive species early detection efforts.

Two project phases were envisioned to accomplish the necessary work, with vertebrate and invertebrate database enhancements addressed in Phase I and early detection database enhancements in Phase II. Each phase consisted of three main components: 1) determine technical requirements; 2) implement database enhancements; and 3) integrate data elements into ISC statewide reporting system. Due to the relative difficulty of determining the technical requirements for vertebrate and invertebrate database enhancements, early detection was addressed first.

Early Detection Database Enhancements

Determine Technical Requirements

Technical requirements were determined through a series of interviews with ISC staff and an all-ISC data hui. Existing early detection efforts and methods developed by the National Park Service (NPS), Forest and Kim Starr and the Oahu Early Detection team proved to be useful models.

It was determined that ISC early detection database enhancements must include or track the following elements:

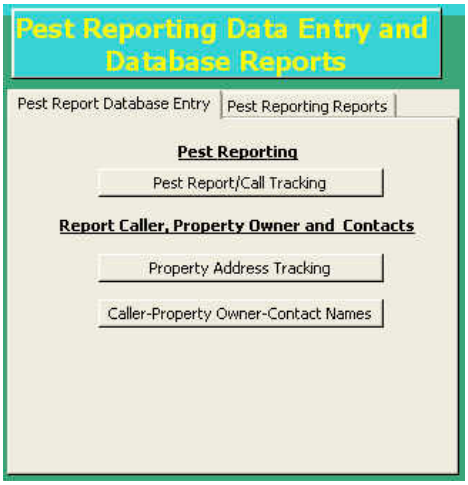
1) Invasive species reports or calls from the public and other agencies
2) Early detection, multi-species roadside and high-risk site surveys
3) Weed ranking module
4) Properties, TMKs and addresses
5) Businesses, such as nurseries, and associated information
6) Collected / vouchered specimens
7) Images

Implement Database Enhancements

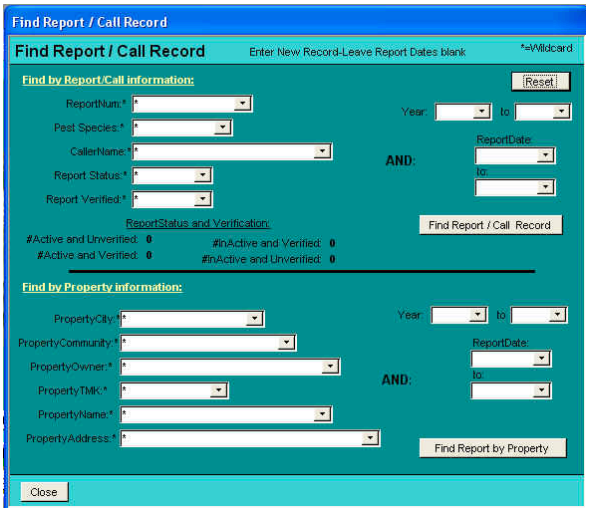
All technical requirements defined above have been added to existing ISC databases. The system is currently being tested. Minor adjustments may be necessary over time.

Pest Reports

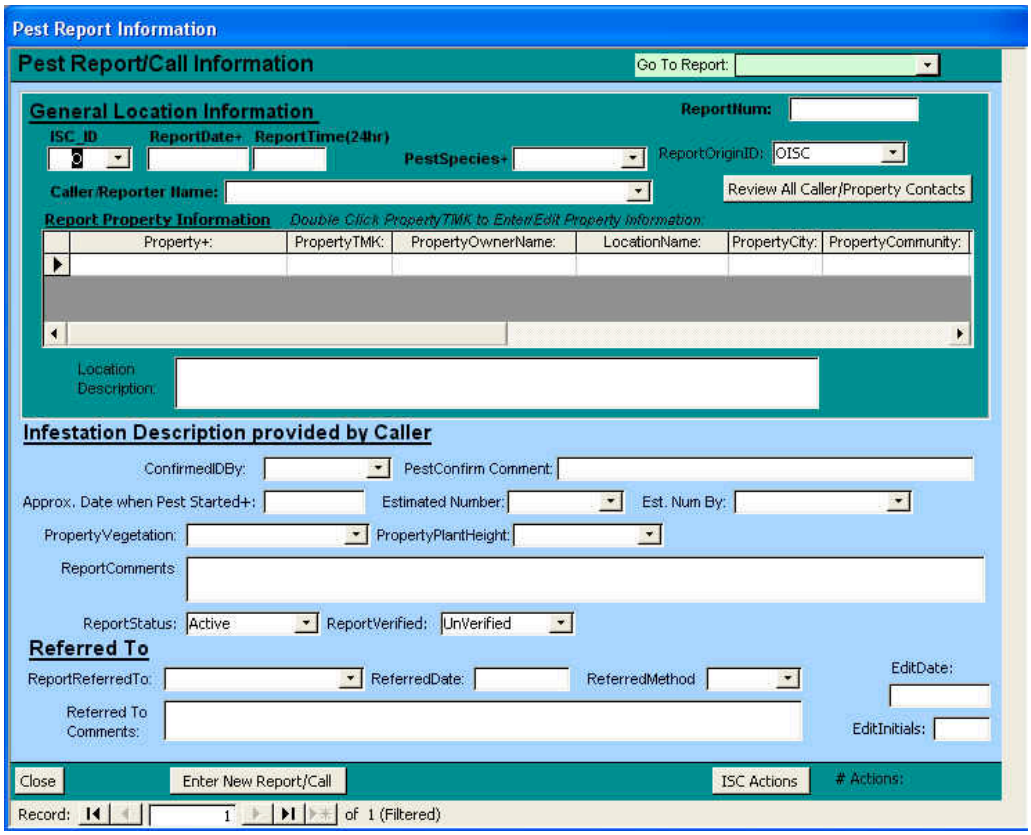
Pest Report - Main Menu:



Pest Report - Search Form

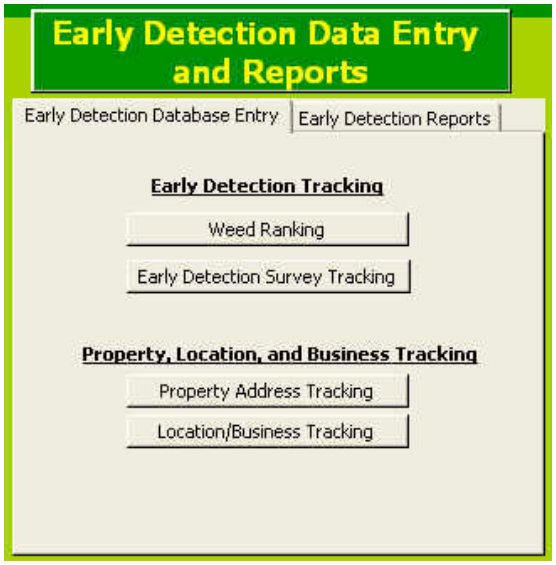


Pest Report – Data Entry:

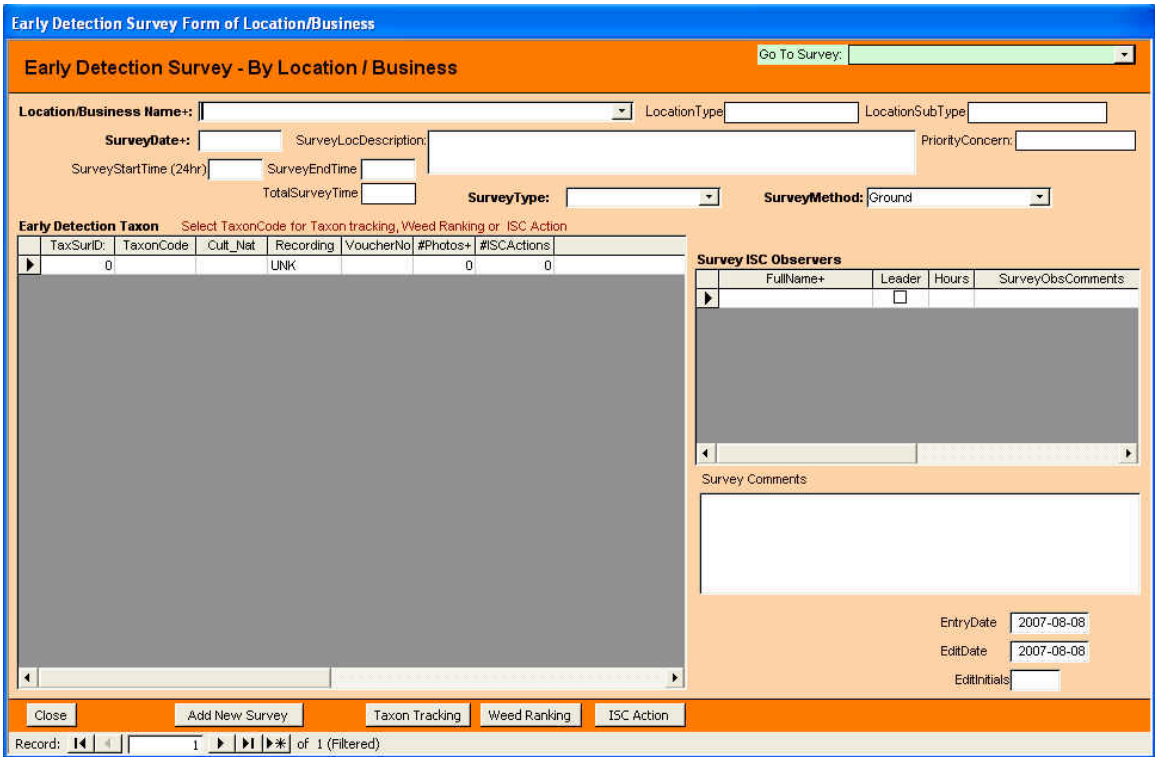


Early Detection Roadside, High-risk Site Surveys

Early Detection – Main Menu:

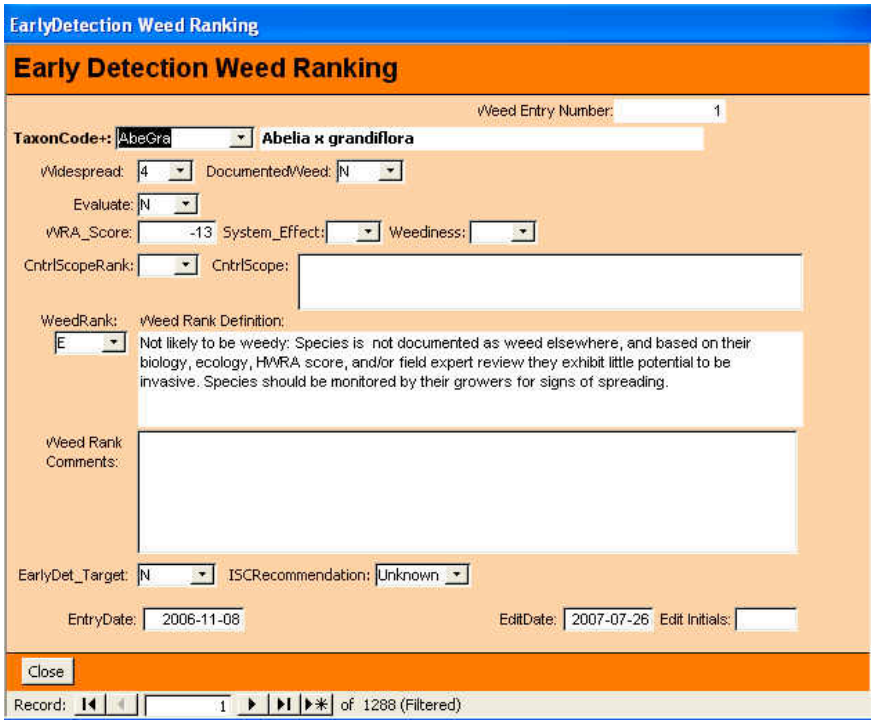


Early Detection Survey – Data Entry:



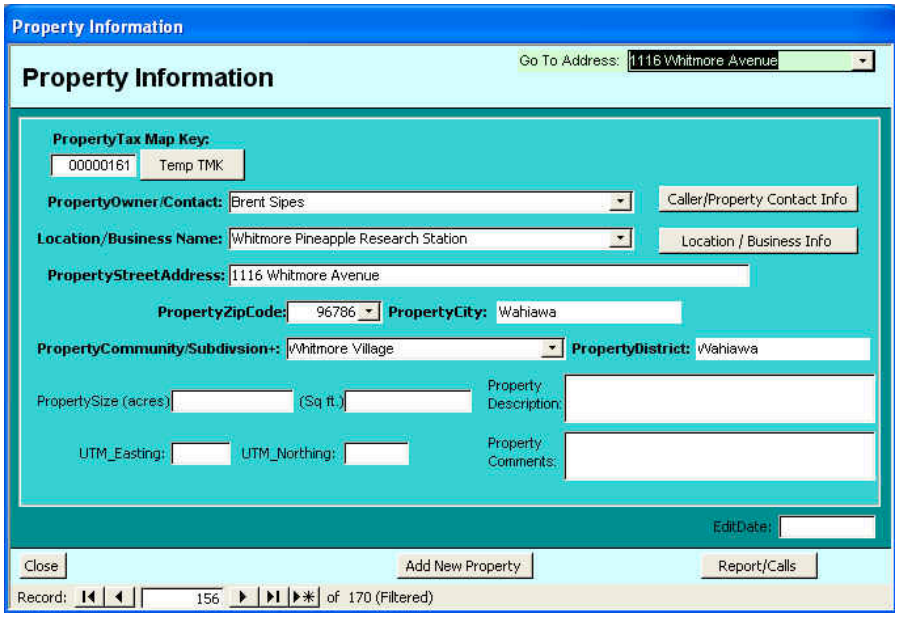
Weed Ranking

Weed Ranking – Data Entry:



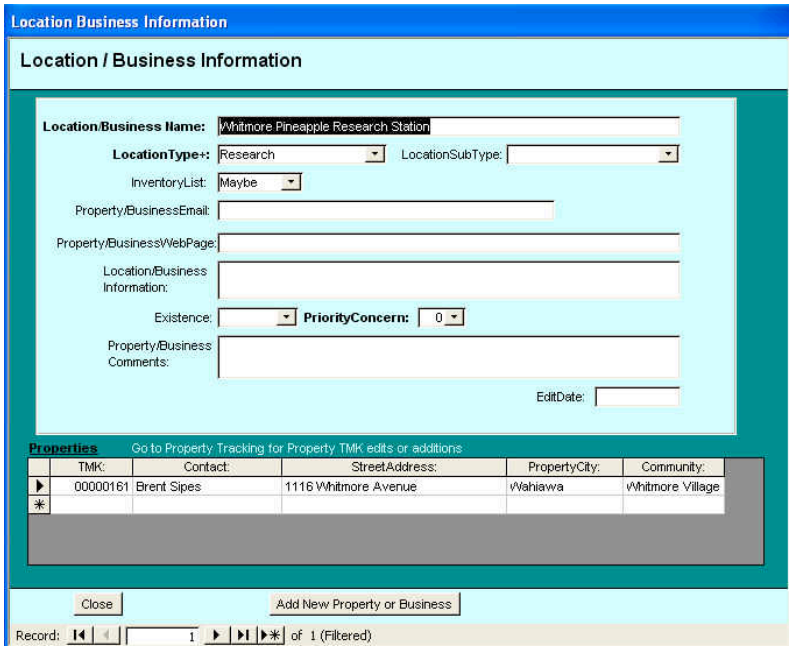
Properties, TMKs, Addresses

Properties Data Entry:



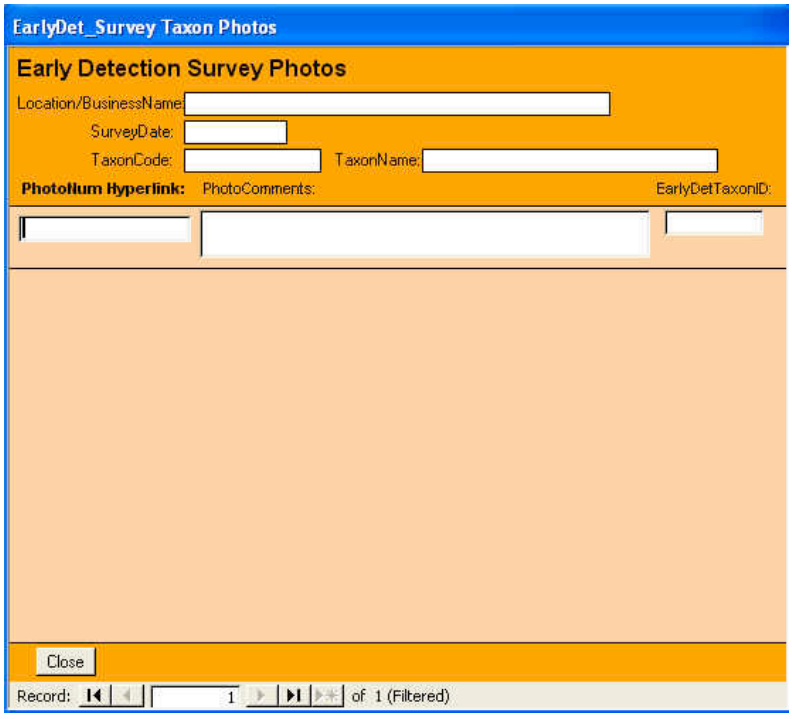
Businesses

Business Data Entry:



Images

Image Tracking:



Early Detection Statewide Reporting

Statewide data reporting requires the definition of specific data elements to be exported from early detection database information. These data must be structured in such a way to allow for the aggregation of this information across all ISCs. Reporting requirements were determined through a series of meetings with HISC staff.

Species-based Report

This report will consist of the following information:

- Taxon Code
- Taxon Name
- Number of Surveys Targeted
- Number of Locations Found
- Number of Locations Found by Site Type
    - Number Found at Nursery
    - Number Found at Botanical Gardens
    - Number Found along Roadsides
- Weed Ranking
    - ISC Target
    - ISC Recommendation

Location-based Report

This report will consist of the following information:

- Location Type
- Location Sub-type
- Number of Surveys Conducted
- Number of Species Found by Site Type
    - Number Found at Nursery
    - Number Found at Botanical Gardens
    - Number Found along Roadsides

Weed Ranking Report

This report will consist of the following information:

- Taxon Code
- Weed Rank
- Wed Rank Comments
- Early Detection Target
- ISC Recommendation

Vertebrate / Invertebrate Database Enhancements

Determine Technical Requirements

This phase of the project began in July 2007. Technical requirements have been determined though a series of interviews with ISC staff and HISC managers. Existing databases capturing vertebrate and invertebrate control efforts developed by The Nature Conservancy and Maui Land & Pine team proved to be useful models.

It was determined that ISC early detection database enhancements must include or track the following elements:

1) Control efforts using chemical treatments (coqui frog)
2) Control efforts using mechanical and sticky traps
    a. Trap groups
    b. Individual traps
    c. Bait
3) Control efforts using bait stations
    a. Bait
4) Control efforts using broadcast aerial application
    a. Bait
5) Animal Captures
    a. Total Captures
    b. Gender
    c. Age Class / Size
    d. Reproductive Status
6) West Nile Virus / Avian Influenza - Dead bird pick-ups

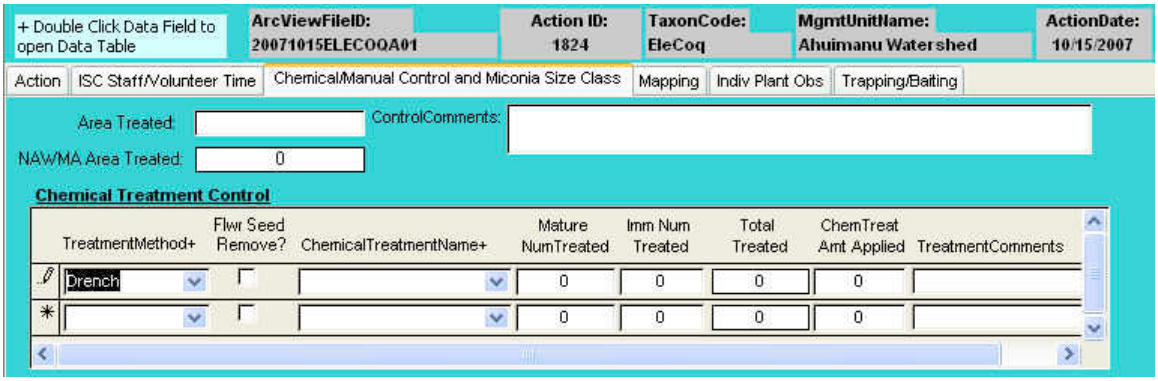
Implement Database Enhancements

All technical requirements defined above have been added to existing ISC databases. The system is currently being tested. Minor adjustments may be necessary over time.

Chemical Treatments (coqui frog / ants / broadcast aerial spray)

Chemical Data Entry:

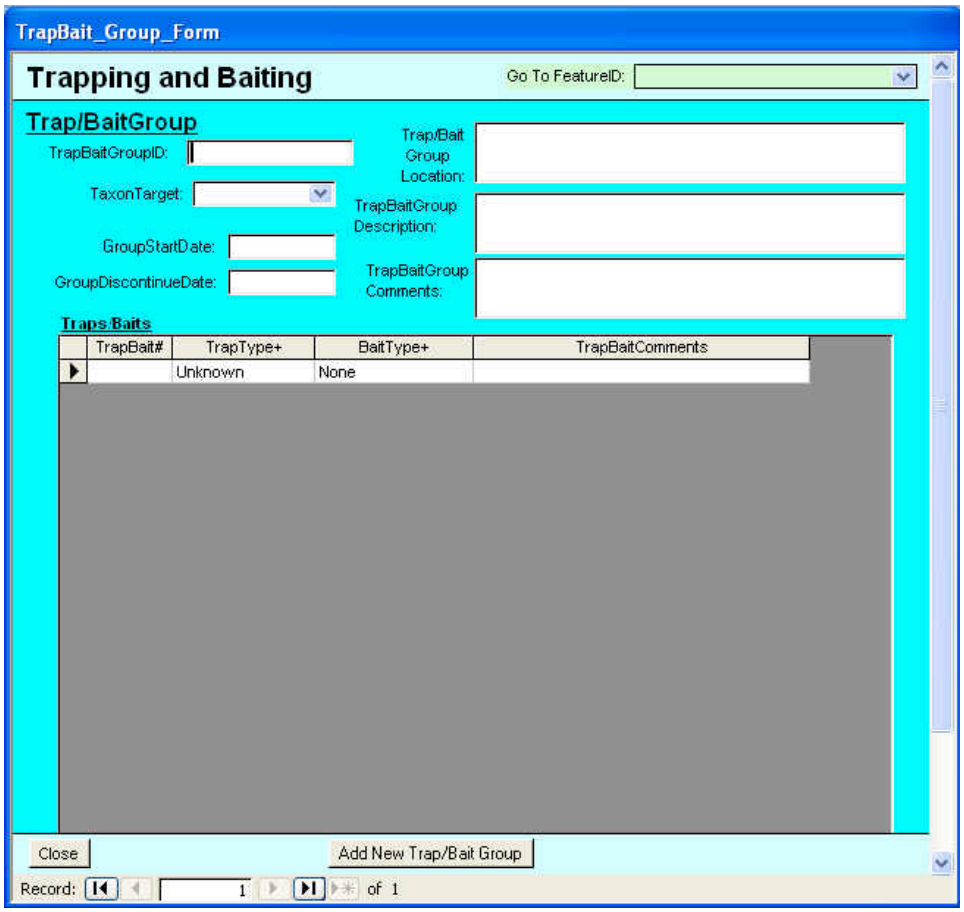
Vertebrate and invertebrate chemical treatments are accounted for in existing database forms with some minor modifications. Treatment methods such as “Drench” and “Broadcast Aerial” are assigned using the “TreatmentMethod” field. Species are assigned under the existing Action tab.



Control using Mechanical or Sticky Traps / Bait Stations

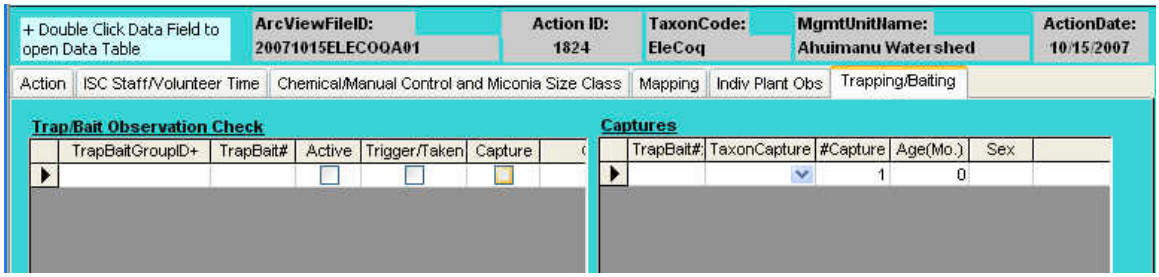
Establish Trap/BaitStation Group:

The Trap/BaitStation Group is established by assigning a Trap Group ID, Target Taxon, Start Date and Discontinue Date. Individual traps or bait stations within the group are established in the Traps/Baits section. The type of trap or bait station and bait are assigned to each trap using the TrapType and BaitType fields.



Document Trap/Bait Station Observations:

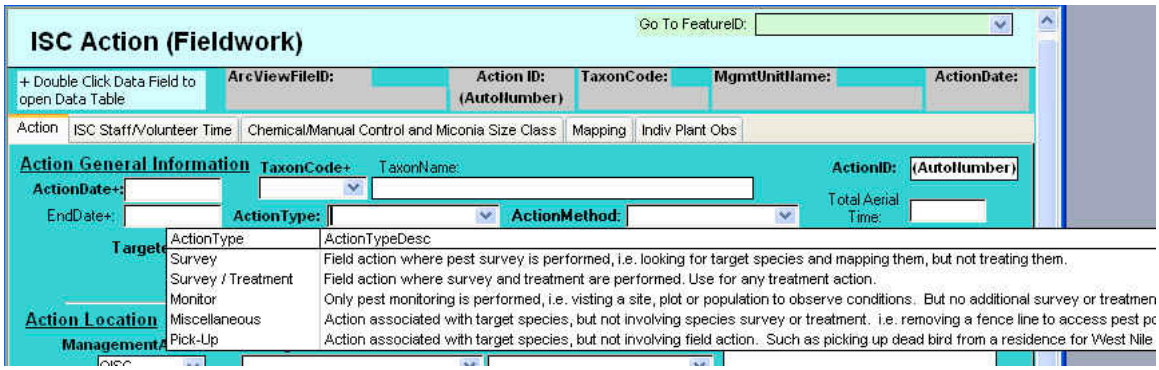
Each time traps groups and individual traps are checked, the visit and results are documented. Certain attributes are tracked, including whether the trap is Active, whether the bait was taken and if there is a Capture. If there was a Capture, the age and sex of the animal of noted.



Dead Bird Pick-up – West Nile Virus and Avian Influenza

Documenting a Dead Bird Pick-up:

The existing system with minor modifications can account for dead bird pick-ups. The species is documented in the Action form and a new Action Type value was added.



Vertebrate / Invertebrate Statewide Reporting

Statewide data reporting requires the definition of specific data elements to be exported form the vertebrate and invertebrate database information. These data must be structured in such a way to allow for the aggregation of this information across all ISCs. General reporting requirements have been determined through meetings with HISC staff, however, the detailed, field-level requirements have yet to be determined. These more detailed standards will be developed by the end of 2007 when the next HISC reports are due.