

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

Final Report for HISC Contract 54965

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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:

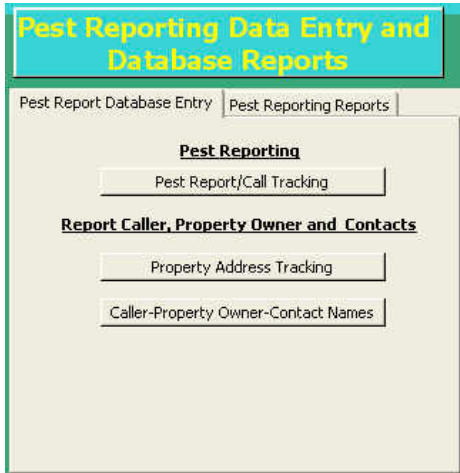
- 1) Invasive species reports or calls from the public and other agencies
- 2) Early detection, multi-species roadside and high-risk site surveys
- 3) Weed ranking module
- 4) Properties, TMKs and addresses
- 5) Businesses, such as nurseries, and associated information
- 6) Collected / vouchered specimens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

Pest Report Database Entry | Pest Reporting Reports

Pest Reporting

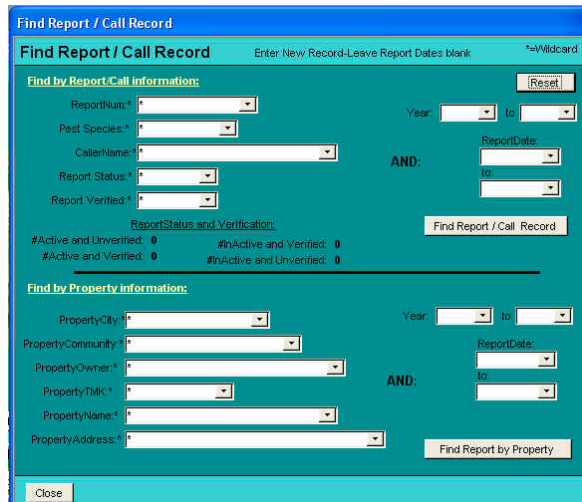
Pest Report/Call Tracking

Report Caller, Property Owner and Contacts

Property Address Tracking

Caller-Property Owner-Contact Names

Pest Report - Search Form



Find Report / Call Record Enter New Record-Leave Report Dates blank *WinWord

Find by Report/Call Information: [Reset]

ReportNum:* [] Year: [] to []

Pest Species:* []

CallerName:* [] AND: ReportDate: []

Report Status:* [] to: []

Report Verified:* []

Report Status and Verification: Find Report / Call Record

#Active and Unverified: 0 #nActive and Verified: 0

#Active and Verified: 0 #nActive and Unverified: 0

Find by Property Information:

PropertyCity:* [] Year: [] to []

PropertyCommunity:* [] ReportDate: []

PropertyOwner:* [] AND: to: []

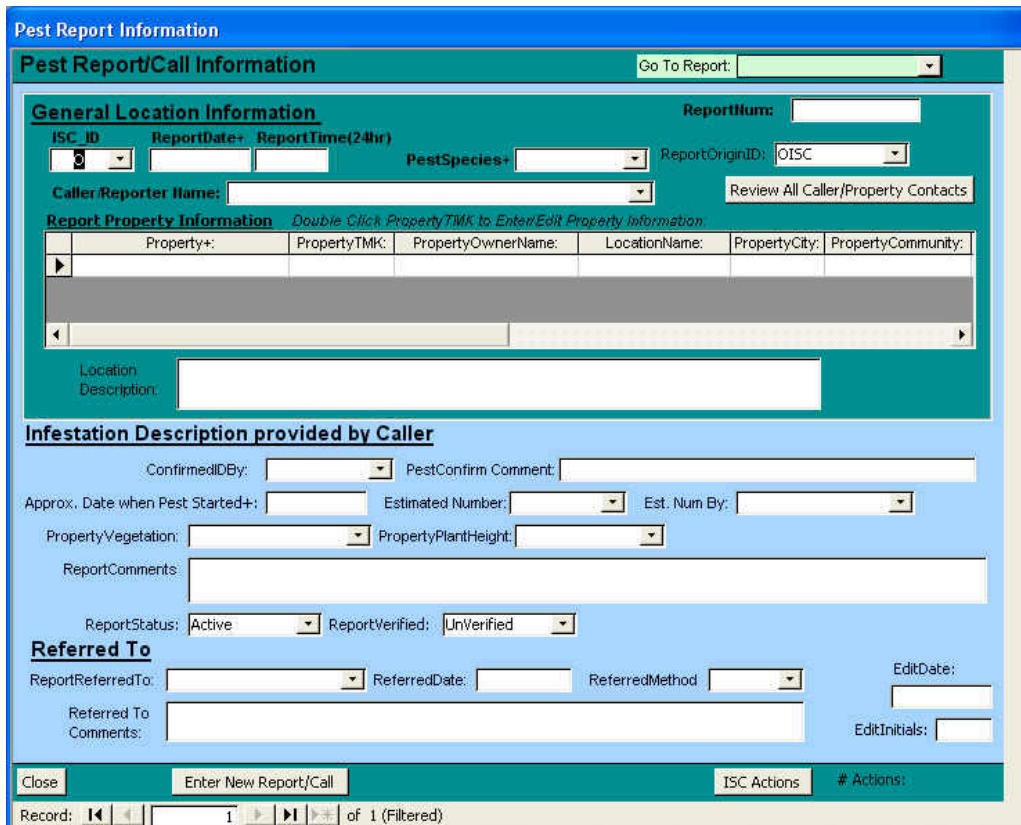
PropertyTMK:* []

PropertyName:* []

PropertyAddress:* [] Find Report by Property

Close

Pest Report – Data Entry:



Pest Report Information

Pest Report/Call Information Go To Report: []

General Location Information

ISC_ID: [3] ReportDate: [] ReportTime(24hr): [] ReportNum: []

PestSpecies+: [] ReportOriginID: OISC []

Caller/Reporter Name: [] Review All Caller/Property Contacts

Report Property Information Double Click PropertyTMK to Enter/Edit Property Information

Property+:	PropertyTMK:	PropertyOwnerName:	LocationName:	PropertyCity:	PropertyCommunity:
[]	[]	[]	[]	[]	[]

Location Description: []

Infestation Description provided by Caller

ConfirmedIDBy: [] PestConfirm Comment: []

Approx. Date when Pest Started+: [] Estimated Number: [] Est. Num By: []

PropertyVegetation: [] PropertyPlantHeight: []

ReportComments: []

ReportStatus: Active [] ReportVerified: UnVerified []

Referred To

ReportReferredTo: [] ReferredDate: [] ReferredMethod: [] EditDate: []

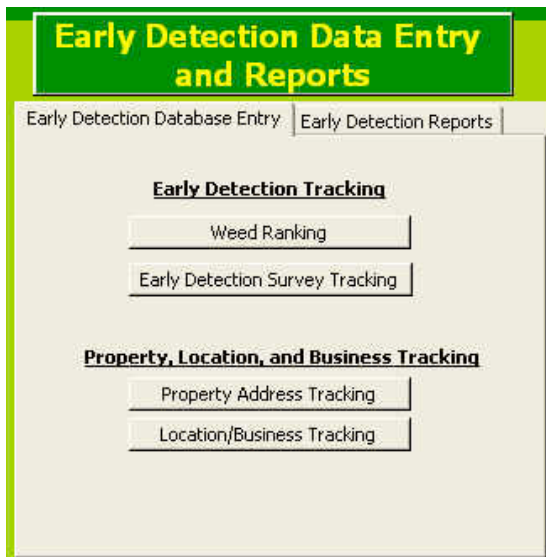
Referred To Comments: [] EditInitials: []

Close Enter New Report/Call ISC Actions # Actions:

Record: [] of 1 (Filtered)

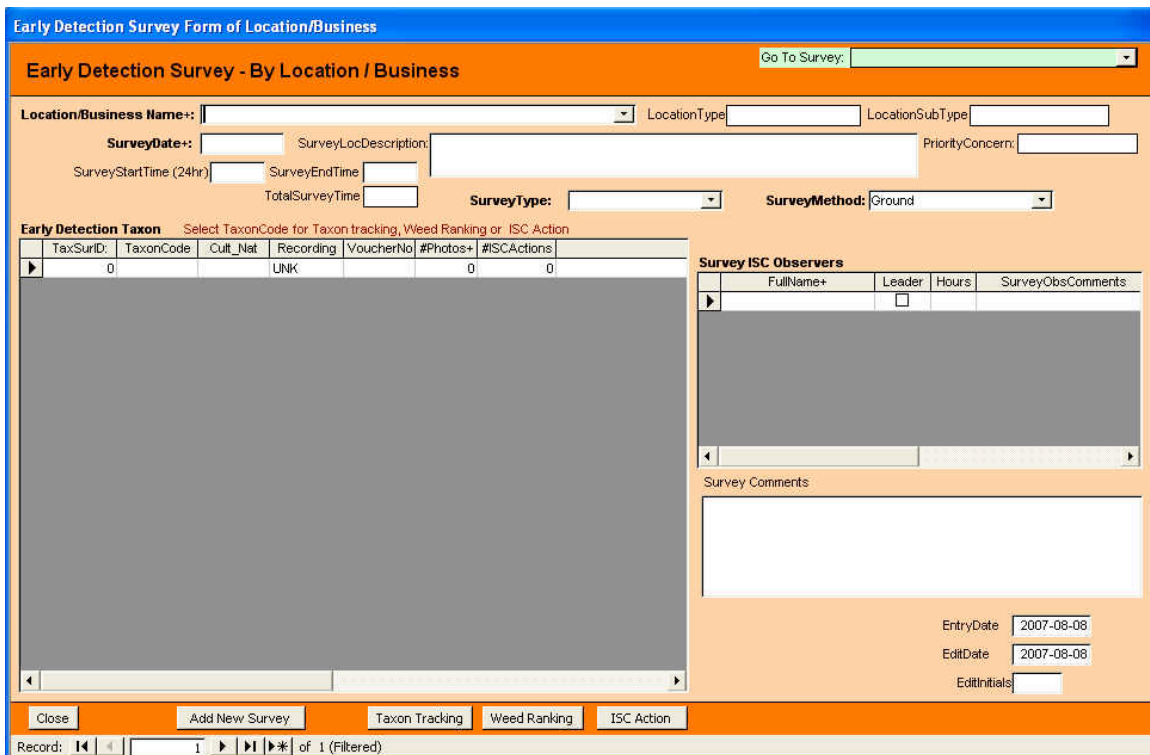
Early Detection Roadside, High-risk Site Surveys

Early Detection – Main Menu:



The screenshot shows a web application interface with a green header bar containing the text "Early Detection Data Entry and Reports". Below the header, there are two tabs: "Early Detection Database Entry" and "Early Detection Reports". The main content area is divided into two sections. The first section, titled "Early Detection Tracking", contains two buttons: "Weed Ranking" and "Early Detection Survey Tracking". The second section, titled "Property, Location, and Business Tracking", contains two buttons: "Property Address Tracking" and "Location/Business Tracking".

Early Detection Survey – Data Entry:



The screenshot shows a web application interface for "Early Detection Survey Form of Location/Business". The form is titled "Early Detection Survey - By Location / Business" and includes a "Go To Survey:" dropdown menu. The form is divided into several sections. The "Location/Business Name" section includes a dropdown menu for "Location/Business Name", a text field for "LocationType", and a text field for "LocationSubType". The "SurveyDate" section includes a text field for "SurveyDate", a text field for "SurveyLocDescription", and a text field for "PriorityConcern". The "SurveyStart/End/Total Time" section includes text fields for "SurveyStartTime (24hr)", "SurveyEndTime", and "TotalSurveyTime". The "SurveyType" section includes a dropdown menu for "SurveyType". The "SurveyMethod" section includes a dropdown menu for "SurveyMethod". The "Early Detection Taxon" section includes a table with columns: "TaxSurID", "TaxonCode", "Cult_Nat", "Recording", "VoucherNo", "#Photos", and "#SCActions". The table contains one row with values: "0", "UNK", "0", and "0". The "Survey ISC Observers" section includes a table with columns: "FullName+", "Leader", "Hours", and "SurveyObsComments". The table contains one row with values: "Leader", "Hours", and "SurveyObsComments". The "Survey Comments" section includes a text area for "Survey Comments". The "Entry/Edit Date/Initials" section includes text fields for "EntryDate", "EditDate", and "EditInitials". The bottom of the form includes a navigation bar with buttons: "Close", "Add New Survey", "Taxon Tracking", "Weed Ranking", and "ISC Action". The footer shows "Record: 1 of 1 (Filtered)".

Weed Ranking

Weed Ranking – Data Entry:

EarlyDetection Weed Ranking

W Weed Entry Number: 1

TaxonCode+: **AbeGra** **Abelia x grandiflora**

Widespread: 4 Documented/Weed: N

Evaluate: N

WRA_Score: -13 System_Effect: Weediness:

CntrlScopeRank: CntrlScope:

WeedRank: **E** Weed Rank Definition:
Not likely to be weedy: Species is not documented as weed elsewhere, and based on their biology, ecology, HMRA score, and/or field expert review they exhibit little potential to be invasive. Species should be monitored by their growers for signs of spreading.

Weed Rank Comments:

EarlyDet_Target: N ISCRecommendation: Unknown

EntryDate: 2006-11-08 EditDate: 2007-07-26 Edit Initials:

Close

Record: 1 of 1208 (Filtered)

Properties, TMKs, Addresses

Properties Data Entry:

Property Information

Go To Address: 1116 Whitmore Avenue

PropertyTax Map Key:
00000161 Temp TMK

PropertyOwner/Contact: Brent Sipes **Caller/Property Contact Info**

Location/Business Name: Whitmore Pineapple Research Station **Location / Business Info**

PropertyStreetAddress: 1116 Whitmore Avenue

PropertyZipCode: 96786 **PropertyCity:** Wahiawa

PropertyCommunity/Subdivision+: Whitmore Village **PropertyDistrict:** Wahiawa

PropertySize (acres): (Sq ft.) **Property Description:**

UTM_Easting: **UTM_Northing:** **Property Comments:**

EditDate:

Close Add New Property Report/Calls

Record: 156 of 170 (Filtered)

Businesses

Business Data Entry:

Location Business Information

Location / Business Information

Location/Business Name:

LocationType: LocationSubType:

InventoryList:

Property/BusinessEmail:

Property/BusinessWebPage:

Location/Business Information:

Existence: PriorityConcern:

Property/Business Comments:

EditDate:

Properties [Go to Property Tracking for Property TMk edits or additions](#)

	TMK:	Contact:	StreetAddress:	PropertyCity:	Community:
▶	00000161	Brent Sipes	1116 VWhitmore Avenue	vWahiawa	vWhitmore Village
*					

Record: of 1 (Filtered)

Images

Image Tracking:

EarlyDet_Survey Taxon Photos

Early Detection Survey Photos

Location/BusinessName:

SurveyDate:

TaxonCode: TaxonName:

Photolium Hyperlink: PhotoComments: EarlyDetTaxonID:

Record: of 1 (Filtered)

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
- Weed 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 through 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.

+ Double Click Data Field to open Data Table		ArcViewFileID: 20071015ELEC00A01	Action ID: 1824	TaxonCode: EleCoq	MgmtUnitName: Ahuimanu Watershed	ActionDate: 10/15/2007	
Action	ISC Staff/Volunteer Time	Chemical/Manual Control and Miconia Size Class		Mapping	Indiv Plant Obs	Trapping/Baiting	
Area Treated: <input type="text"/>		ControlComments: <input type="text"/>					
NAW/MA Area Treated: <input type="text" value="0"/>							
Chemical Treatment Control							
TreatmentMethod+	Flwr Seed Remove?	ChemicalTreatmentName+	Mature NumTreated	Imm Num Treated	Total Treated	ChemTreat Amt Applied	TreatmentComments
<input type="text" value="Drench"/>	<input type="checkbox"/>	<input type="text"/>	0	0	0	0	
<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	0	0	0	0	

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.

TrapBait_Group_Form			
Trapping and Baiting			Go To FeatureID: <input type="text"/>
Trap/BaitGroup			
TrapBaitGroupID: <input type="text"/>	Trap/Bait Group Location: <input type="text"/>		
TaxonTarget: <input type="text"/>	TrapBaitGroup Description: <input type="text"/>		
GroupStartDate: <input type="text"/>	TrapBaitGroup Comments: <input type="text"/>		
GroupDiscontinueDate: <input type="text"/>			
Traps/Baits			
TrapBait#	TrapType+	BaitType+	TrapBaitComments
<input type="text"/>	Unknown	None	
Close		Add New Trap/Bait Group	
Record: <input type="text" value="1"/> of 1			

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.

Trap/Bait Observation Check				
TrapBaitGroupID+	TrapBait#	Active	Trigger/Taken	Capture
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Captures				
TrapBait#	TaxonCapture	#Capture	Age(Mo.)	Sex
	<input checked="" type="checkbox"/>	1	0	

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.

ISC Action (Fieldwork)	
Target	ActionTypeDesc
Survey	Field action where pest survey is performed, i.e. looking for target species and mapping them, but not treating them.
Survey / Treatment	Field action where survey and treatment are performed. Use for any treatment action.
Monitor	Only pest monitoring is performed, i.e. visiting a site, plot or population to observe conditions. But no additional survey or treatment.
Miscellaneous	Action associated with target species, but not involving species survey or treatment. i.e. removing a fence line to access pest pc
Pick-Up	Action associated with target species, but not involving field action. Such as picking up dead bird from a residence for West Nile

Vertebrate / Invertebrate Statewide Reporting

Statewide data reporting requires the definition of specific data elements to be exported from 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.