

Is that a pest plant?

Modern tools for smarter eradication

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- Modern tools
- FME process
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- Summary and lessons



NIPR FRO

National Interest Pest Response – Four Risk Organisms



Cape tulip
Moraea flaccida



Johnson grass
Sorghum halepense

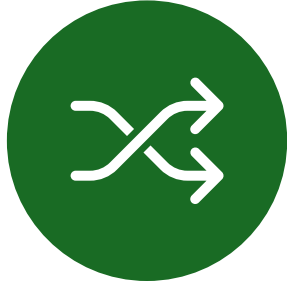


Water hyacinth
Eichhornia crassipes



Salvinia
Salvinia molesta

Modern Tools



FME TO TRANSFORM
DATA TO FIT NEW
SCHEMA, AND AUTO
CALCULATING DATA
FIELDS



FIELD MAPS AND
SURVEY 123 TO
CAPTURE DATA ON SITE



WEB APP AND DASHBOARD
TO VIEW AND TRACK PLANT
STATUS / REPORTING

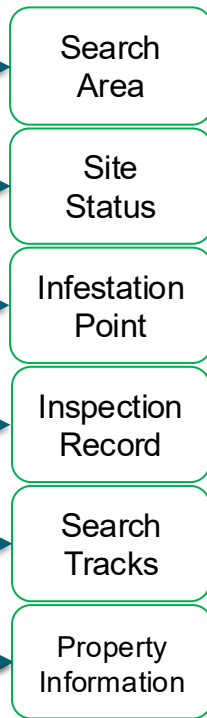
Data Transformation and Migration

Old Schema



FME Magic

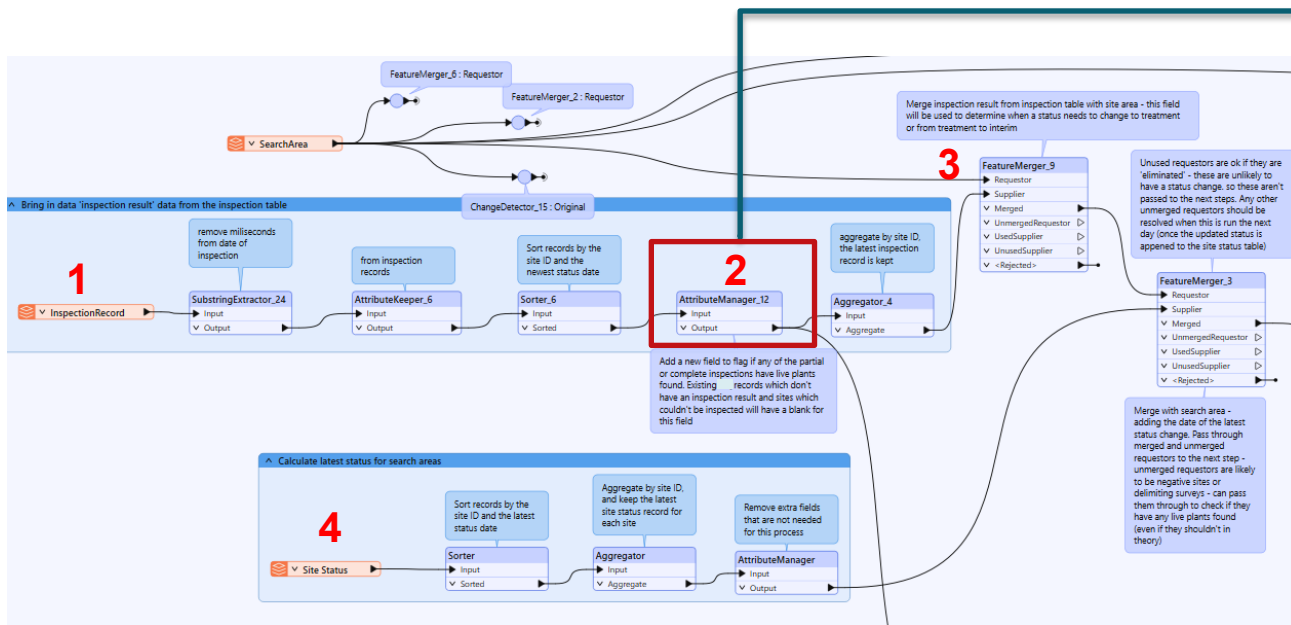
New Schema



Attribute Auto-calculation



Attribute Auto-calculation – Site Status

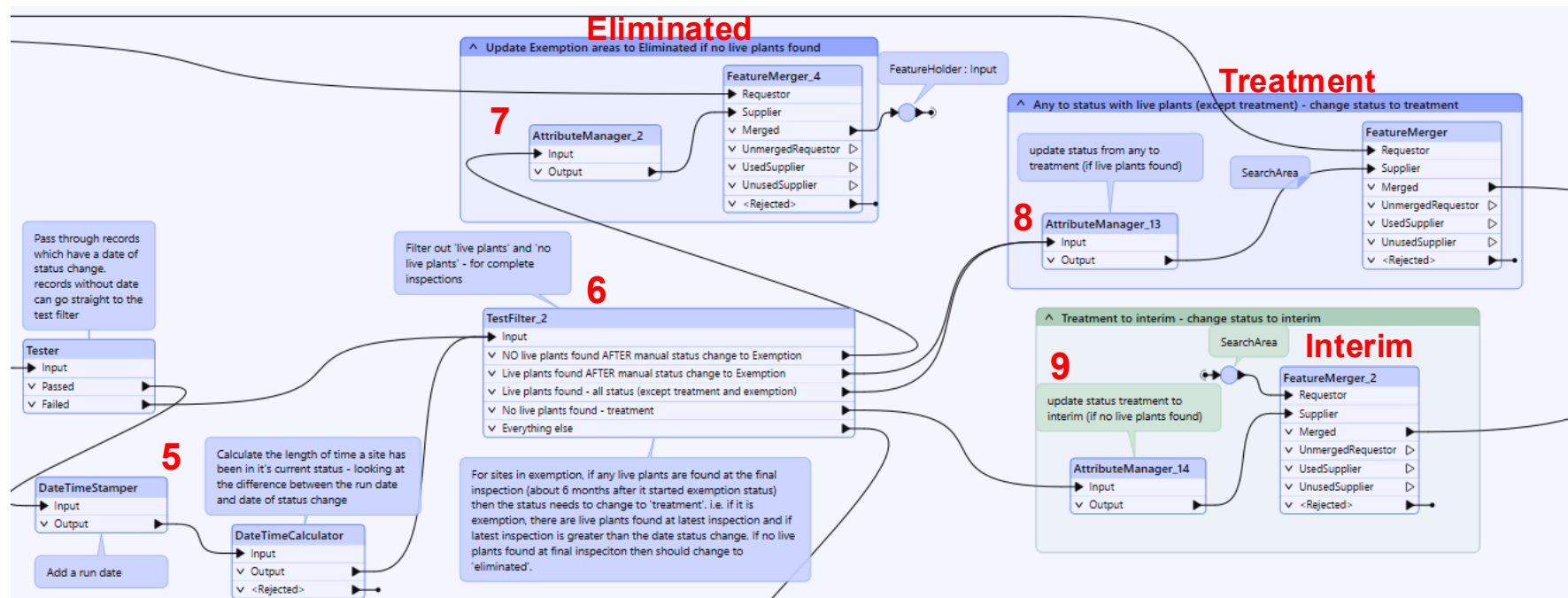


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Conditional Value Definition

Condition Statement	Value
Test if (@Value(feature[0]. Data) = Yes AND feature[0].SiteSearchComplete ATTRIBUTE_VALUE_NULL AND feature[0].InspectionResult ATTRIBUTE_VALUE_NULL) OR (@Value(feature[0]. Data) = Yes AND @Value(feature[0].SiteSearchComplete) = Yes AND feature[0].InspectionResult ATTRIBUTE_VALUE_NULL)	
Else if @Value(feature[0].InspectionResult) = Complete search - live plants found	☐ Yes
Else if @Value(feature[0].InspectionResult) = Complete search - no live plants found	☐ No
Else if @Value(feature[0].InspectionResult) = Partial search - no live plants found AND @Value(feature[0].SiteSearchComplete) = No	☐ No
Else if @Value(feature[0].InspectionResult) = Partial search - no live plants found @Value(feature[0].SiteSearchComplete) = Yes @Value(feature[-1].InspectionResult) = Partial search - no live plants found @Value(feature[-1].SiteSearchComplete) = No	
@Value(feature[-1].SiteDisinfect) = @Value(feature[0].SiteDisinfect) @Value(feature[-2].InspectionResult) BEGINS WITH Complete @Value(feature[-2].SiteDisinfect) = @Value(feature[0].SiteDisinfect) @Value(feature[0].InspectionResult) = Partial search - no live plants found <20 more tests>...	☐ No
Composite Test: ((1 AND 2) AND (3 AND 4 AND 5) AND (6 AND 7)) OR ((8 AND 9) AND (...))	
Else if @Value(feature[0].InspectionResult) = Partial search - no live plants found @Value(feature[0].SiteSearchComplete) = Yes @Value(feature[-1].InspectionResult) = Partial search - no live plants found @Value(feature[-1].SiteSearchComplete) = No @Value(feature[-1].SiteDisinfect) = @Value(feature[0].SiteDisinfect) @Value(feature[-2].InspectionResult) = Partial search - no live plants found @Value(feature[-2].SiteSearchComplete) = No @Value(feature[-2].SiteDisinfect) = @Value(feature[0].SiteDisinfect) <32 more tests>...	☐ No
Composite Test: ((1 AND 2) AND (3 AND 4 AND 5) AND (6 AND 7 AND 8) AND (9 AND (...)) @Value(feature[0].InspectionResult) = Partial search - no live plants found @Value(feature[0].SiteSearchComplete) = Yes	

Attribute Auto-calculation – Site Status cont.



ns of no live plants found



The screenshot displays a workflow diagram within the ArcGIS Desktop environment, titled "Detect any status changes and update layer in AGOL". The diagram is composed of several interconnected components:

- SearchArea**: A light blue rectangular box at the top center.
- FeatureHolder**: A light blue rectangular box with an "Input" section and an "Output" section (indicated by a downward arrow).
- ChangeDetector 15**: A light blue rectangular box with a list of status changes: Original, Deleted, Updated, Inserted, Deleted, and Unchanged. Each item has a small downward arrow to its right.
- FeatureWriter**: A light blue rectangular box with a "SearchArea" input, a "Connect Input" button (indicated by a green plus icon), and a "Summary" button (indicated by a blue plus icon).
- FeatureMerger_4 : Merged**: A light blue rectangular box on the left side.
- FeatureMerger_6 : Merged**: A light blue rectangular box at the bottom center.

The workflow is defined by arrows connecting these components:

- An arrow from **FeatureMerger_4 : Merged** points to the **Input** of **FeatureHolder**.
- An arrow from **FeatureMerger_6 : Merged** points to the **Input** of **FeatureHolder**.
- An arrow from **SearchArea** points to the **Output** of **FeatureHolder**.
- An arrow from the **Output** of **FeatureHolder** points to the **Original** input of **ChangeDetector 15**.
- An arrow from the **Output** of **ChangeDetector 15** points to the **Connect Input** button of **FeatureWriter**.

- Previous site status
- Date of last inspection
- Due date next inspection
- Due date of status change
- Activity status
- Latest number of plants
- Latest infestation area
- Region
- Financial year

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Web App

NIPR Web App (MPI Internal)

Create New Site Create Surveillance Area 1st Inspection Result **Editing Map** Dashboard

Site ID or address

- ☐ LINZ NZ Addresses
- ☒ Infestation Points
- ☒ Infestation Polygons
- ☒ Hazards
- ☒ Photos
- ☐ Search Tracks
- ☒ Positive Sites

- Johnson grass
- Cape tulip
- Salvinia
- Water hyacinth
- Salvinia and Water Hyacinth

- ☐ Negative Sites
- ☐ Delimiting Surveillance Areas
- ☒ 1st Inspection Result Incomplete

Northland Region
Auckland Region
Waikato Region
Taranaki Region
Wellington Region
Tasman Region
West Coast Region
Canterbury Region
Southland Region
Area Outside Region

Selected features: 1

Powered by Esri

Info

This app allows you to edit data that was collected in the field.

Map: To search a specific site, use the top left search tool to type in a Site ID, or zoom and pan around the map. Clicking on a feature will show its information in the View or Edit tab.

Table: To view data in a tabular format, click the upwards arrow at the bottom of the app. Selecting on a record in the table will zoom the map to that feature. You can also set custom filters using the Actions button (four dots) and selecting 'Set Filter'.

View: See information about the feature in the map. For sites, you can also view any associated Inspection Record, Property Info or Site Status data.

Edit: Make changes to the data. Use the Select by Point tool to click on a single feature or the Select by Rectangle tool to select multiple to edit.

Filter: The filters apply to both the map and the table. To set custom filters, use the Table.

Latest Sites: See a list of most recently created sites. Sites that are missing the 1st Inspection Result info are highlighted in red.

View

Edit

Edit Inspection Records or Property Information (use table to edit)

Filter

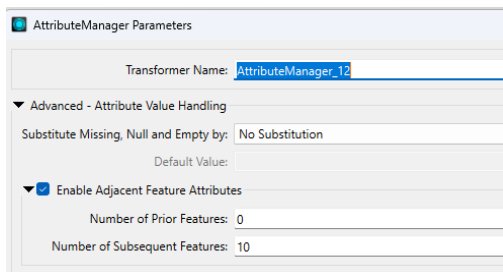
Overdue Sites

Due Sites

Latest Sites

Summary and Lessons

- Many GIS tools (ESRI and FME) are used to support pest plant management across NZ
- FME plays key role by powering back end processes
- Over 700 sites have been identified so far and most have been eliminated
- Good requirements gathering is crucial in working efficiently with FME
- Testing as you build - important to identify issues in workflows



Question Time 😊



Ngā mihi

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Manatū Ahu Matua

