

Enabling Semantic Ecoblogging and Bioblitzes

Cynthia Sims Parr, T. David Wang, Joel Sachs, Lushan Han, Timothy Finin

OWL, RDF, and the Semantic Web

OWL (Web Ontology Language) and the related RDF (Resource Description Framework) are XML-style languages designed to represent the semantics of data. Web documents in these formats can be sensibly interpreted, discovered, aggregated, and integrated.

The problem with Ecoblogs and Bioblitzes

People currently create Eco-blogs: stoies about wildlife they have seen or observations they've made. Similarly, citizen and scientists work together on Bioblitzes to comprehensively report as many species as possible from an area. Currently, none of this information is easily discovered or integrated.

Our solution

We developed and have tested two tools that aim to make it easier for individual scientists and citizens to convert their information to RDF and OWL. Of 1200 Blogger BioBlitz observations, 47 of them were of species defined as "of concern" by USFWS.

Spotter Firefox extension for adding observation data in RDF to blogs

Write a blog entry or post a photo



FieldMarking

August 2, 2007
A tiger swallowtail at just the right moment
 Filed under: photos; home; observations - vandy @ 10:01 pm EDT, This...
 A few days ago I discovered an interesting brown, big-headed caterpillar lethargically exploring the frame of my garage door. In about an hour he'd reoriented to be head down, but hadn't moved much. After I took this photo, I brought him inside and gave him a couple of twigs in jar. He immediately lashed onto one with a little silk, and within 24 hours had transformed into a motionless pupa.
 I had recognized the general shape as a *Papilio* caterpillar, but recalled that they were green. Turns out that just before pupation *Papilio glaucus* turns brown. This guy is looking forward to looking like [img alt="pupa icon"] after metamorphosis in a few weeks. It's possible, I guess that he might be planning to overwinter with us. Will wait and see.

Fill out Spotter form



Link to the RDF

garage door. In about an hour he reoriented to be head down, brought him inside and gave him a couple of twigs in jar. He imr 24 hours had transformed into a motionless pupa.

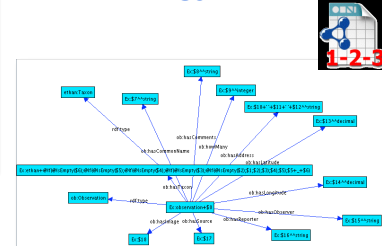
```
<rdf:RDF>
  <Observation rdf:about="">
    <hasReporter rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Cynthia Parr</hasReporter>
    <hasObserver rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Cynthia Parr</hasObserver>
    <hasAddress rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Howard County, MD</hasAddress>
    <hasLatitude rdf:dataType="http://www.w3.org/2001/XMLSchema#decimal">39.262629</hasLatitude>
    <hasLongitude rdf:dataType="http://www.w3.org/2001/XMLSchema#decimal">76.841728</hasLongitude>
    <hasDate rdf:dataType="http://www.w3.org/2001/XMLSchema#dateTime">2007-08-02</hasDate>
    <hasTaxon rdf:resource="http://purl.obolibrary.org/ontology/Eidos/terms/obolibrary:gluc">
    <hasCommonName rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Tiger Swallowtail</hasCommonName>
    <hasMay rdf:dataType="http://www.w3.org/2001/XMLSchema#boolean">1</hasMay>
    <hasSource rdf:dataType="http://www.w3.org/2001/XMLSchema#string">http://blog.vandy.edu/fieldmarking/?p=155</hasSource>
    <hasImage rdf:dataType="http://www.w3.org/2001/XMLSchema#string">
      http://img2.natic.flickr.com/1310992496026_abc641d8c_m.jpg
    </hasImage>
    <hasComments rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Found just before pupation.</hasComments>
  </Observation>
</rdf:RDF>
```

RDF123 Publishing spreadsheet data in RDF

Make spreadsheet

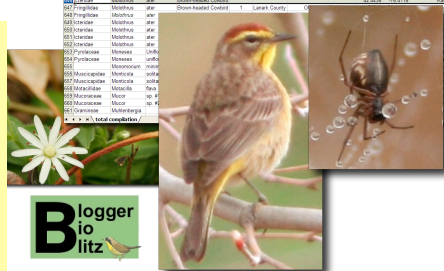
Family	Genus	Species	Common Name	Forest	City/Town	State/Province	Country	Latitude	Longitude	Decompose	Stage
001	Merula	merula	Chimney Swift	0	Andes						
002	Mimus	polyglottus	Northern Mockingbird	2	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
003	Melanerpes	formicivorus	Red-bellied Woodpecker	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
004	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
005	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
006	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
007	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
008	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
009	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
010	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
011	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
012	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
013	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
014	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
015	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
016	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
017	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
018	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
019	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature
020	Parus	americanus	Parula	1	Washington	DC	United States	38.9073	-77.0369	Swallow	Immature

Create or link to a map file (to ontology terms)



Generate RDF

```
<?xml version="1.0" encoding="UTF-8" ?>
<rdf:RDF>
  <Observation rdf:about="">
    <hasReporter rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Kathie Hodge</hasReporter>
    <hasObserver rdf:dataType="http://www.w3.org/2001/XMLSchema#string">
    <hasAddress rdf:dataType="http://www.w3.org/2001/XMLSchema#string">
    <hasLatitude rdf:dataType="http://www.w3.org/2001/XMLSchema#decimal">42.443600</hasLatitude>
    <hasLongitude rdf:dataType="http://www.w3.org/2001/XMLSchema#decimal">-76.411600</hasLongitude>
    <hasDate rdf:dataType="http://www.w3.org/2001/XMLSchema#dateTime">2007-04-28</hasDate>
    <hasTaxon rdf:resource="http://purl.obolibrary.org/ontology/Eidos/terms/obolibrary:gluc">
    <hasCommonName rdf:dataType="http://www.w3.org/2001/XMLSchema#string">Brom-headed Cowbird</hasCommonName>
    <hasMay rdf:dataType="http://www.w3.org/2001/XMLSchema#boolean">0</hasMay>
    <hasSource rdf:dataType="http://www.w3.org/2001/XMLSchema#string">http://hous.ccc.coned.edu/mudroom_blog/?p=401</hasSource>
    <hasImage rdf:dataType="http://www.w3.org/2001/XMLSchema#string">
    <hasComments rdf:dataType="http://www.w3.org/2001/XMLSchema#string">
  </Observation>
</rdf:RDF>
```



Blogger to litz

Free download at <http://spire.umbc.edu>

