

**Oregon Watershed Enhancement Board**  
**Oregon Watershed Restoration Inventory Project Metadata**  
**January 13, 2011**

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The Oregon Watershed Enhancement Board (OWEB) has been acquiring watershed restoration information since 1997 through the Oregon Watershed Restoration Inventory (OWRI) to track on-the-ground efforts to restore aquatic habitat and water quality conditions in Oregon. The specific objectives of the OWRI are as follows:

- synthesize and evaluate the types of restoration activities implemented within watersheds and statewide;
- document voluntary efforts in the public and private sectors to restore watershed conditions;
- provide information (in database and GIS formats) to watershed councils and other local groups to support watershed assessments and future restoration planning and prioritization;
- estimate the proportion of restoration activities meeting state habitat restoration guidelines; and
- provide information to support effectiveness monitoring of regional and statewide restoration activities.

Restoration practitioners submit project data to the Oregon Watershed Restoration Inventory office upon completion of restoration projects. A complete OWRI data submission consists of recorded project information (e.g. cost, outcomes) on the standardized OWRI reporting form (online or paper version) and corresponding project location map. Once acquired, data and maps are assigned a unique project identification number. This number links spatial project data with tabular project data, which are stored in a relational database using SQL Server software. The full OWRI dataset represents statewide restoration accomplishments across various land ownerships, although primarily on non-federal lands, implemented between 1995 and the present.

### **Dataset Description: Spatial Data**

OWRI spatial data includes point, line, and polygon and arc features mapped from hard copy project location maps are stored in a geodatabase. Spatial data metadata are stored in ArcCatalog with the geodatabase and can be provided upon request.

Access Constraints: None.

Source Information and Attribute Accuracy:

All project locations were derived from maps of varying scales, type, and quality provided by restoration practitioners. The accuracy of project locations is unknown, as none of the restoration project locations indicated on submitted maps have been ground-truthed by the OWRI project.

## **Point of Contact for OWRI Spatial Data**

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## Dataset Description: Relational Database

The OWRI has developed a standardized reporting form for project documentation. Once restoration practitioners submit the reporting form, the project data are compiled into a relational SQL Server database. The data are made available to the public by exporting into Microsoft Access software. Unique project identification numbers (PROJNUM) link the relational tables. These are the same numbers entered into the attribute tables of the GIS coverages (project\_nbr).

The Access database data tables with attribute descriptions and look-up tables are listed below. See Appendix A for Associative tables. New fields or revisions are **highlighted**.

### ProjectInfo Table (Main project information table – Note: Every project has one record in this table)

Field Name	Data Type	Size	Field Description
PROJNUM	Number (Long)	4	Unique identifier, database record number assigned by OWRI Staff <b>(equivalent in GIS coverage = project_nbr)</b>
ProjectID	Number (Long)	4	Unique identifier, database record number auto-generated by SQL Server
drvdYear	Number (Long)	4	Primary Project Year (since 2004, we have been using the project completion year)
ReportDate	Date	8	Date reporting form was filled out
IsUpdate	Text	1	This is an UPDATE of a project reported earlier. See PROJLINK for project number of original project. Yes, no, or unknown.
TotalCash	Currency	8	Total cash cost of project
TotalInKind	Currency	8	Projected cost of donated or in-kind services, materials, labor, etc.
StreamName	Text	100	Stream Name
TributaryOf	Text	100	Tributary of
BasinActual	Text	100	3 <sup>rd</sup> field hydrologic unit name (“multiple” indicates multi-basin projects)
SubbasinActual	Text	100	4 <sup>th</sup> field hydrologic unit name (^ in front indicates multi-subbasin projects)
BasinReported	Text	100	Basin that was reported
SubbasinReported	Text	100	Subbasin that was reported
T	Text	20	Township
R	Text	20	Range
SEC	Text	100	Section
County	Text	200	County
SpeciesBenefit	Text	1	Text answer to question: Does project intend to benefit specific fish or wildlife species? Yes, no, or unknown. If yes, go to SPECIES table for Species information.
WatershedAssessment ActionPlan	Text	1	Did Project result from a Watershed Assessment/Action Plan? Yes, no, or unknown
SiteSelectionOther	Text	1	Project site was chosen by something other than a Watershed Assessment/Action Plan. Yes, no, or unknown
WANAME	Text	150	Watershed Assessment Name
WACONDUCT	Text	150	Watershed Assessment conducted by whom?
WAYEAR	Text	20	Year of Watershed Assessment
HOWCHOSEN	Memo		How was the project site and activity chosen?

**ProjectInfo Table (cont.)**

ProjName	Text	250	Project name
StartMonth	Number (Long)	4	Project start month
StartYear	Number (Long)	4	Project start year
CompleteMonth	Number (Long)	4	Project completion month
CompleteYear	Number (Long)	4	Project completion year
MapStatus	Text	50	Choices: Adequate map attached; Map provided but not adequate; No map attached; Adequate map received after follow-up
AddUpdate	Date	8	Date the project was entered into OWRI database.
InstreamRGPHistorical	Text	1	Instream Activity question: Is this project covered under the ACOE Regional General Permit? yes, no, or unknown
WetlandProtectedByConservationEasement	Text	1	Wetland Activity: Is project site protected by a CONSERVATION EASEMENT? Yes, no, or unknown
HistoricFishUseAboveBarrier	Text	1	Fish Passage Improvement Activity: Text answer to question: Have the target fish species historically inhabited the area upstream of the barrier? Yes, no, or unknown
drvdHUC4thField	Number (Long)	4	4 <sup>th</sup> field hydrologic units (1111111 indicates projects where HUCs could not be identified)
drvdReportBasin	Text	50	Basin designations for the Oregon Plan Biennial Progress Report (partly based on 3 <sup>rd</sup> field hydrologic units)
drvdOwebNum	Text	50	Shows one to many OWEB Grant Numbers (if project was funded by OWEB) – each number is separated by “/”.
drvdRandENum	Text	20	ODFW R & E Grant Number (if project was funded by R & E)
drvdProjLink	Text	20	This project is linked by either ISUPDATE or HASUPDATE to another project number
drvdHasUpdate	Text	1	This project has an update in the database. See PROJLINK for project number of updated project.
drvdProjDesc	Memo		Brief description of project activities –this is not completed by the respondent. It is populated after data entry and QA/QC as time permits.
SpatialDataStatus	Text	50	map status (for “cannot map”, projects were either road surveys or the landowner refused to provide a map)
OwriPoints	Text	1	project mapped in point file
OwriLines	Text	1	project mapped in line file
OwriPolygons	Text	1	project mapped in polygon file
SpatialDataStatusNotes	Text	250	Additional information about spatial data

**Participant Table** (Each project may have several participant records)

Field Name	Data Type	Size	Field Description
ParticipantID	AutoNumber	4	Unique identifier for participant record
PROJNUM	Number (Long)	4	Unique identifier, database record number
ParticipantTypeLUID	Number (Long)	4	see ParticipantTypeLU table
Participant	Text	250	Participant name: organization name or granting agency
ProgramName	Text	250	Program name or grant program
GrantNum	Text	20	Grant number (Grant ID#) for grant programs such as OWEB, ODFW R & E, USFWS, etc.
NameExtraInfo	Text	250	Participant name – additional information
Contact	Text	250	Contact name
Phone	Text	20	Participant or participant contact's phone number
Email	Text	100	Participant's e-mail address
Cash	Currency	8	Participant's cash contribution
InKind	Currency	8	Participant's inkind contribution

**ParticipantRole Table** (Each participant may have several participant role records)

Field Name	Data Type	Size	Field Description
ParticipantRoleID	AutoNumber	4	Unique identifier for participant role record
ParticipantID	Number (Long)	4	Participant record ID link
ParticipantRoleLUID	Number (Long)	4	ParticipantRole LUID from Lookup table: ParticipantRoleLU

**ParticipantRoleLU Table** (Lookup table for ParticipantRole in ParticipantRole table)

ParticipantRoleLUID	ParticipantRole
1	Respondent (person who reported the project information)
2	Land owner
3	Funder
4	Primary project coordinator
5	Provided technical assistance or products
6	OWEB grantee
99	Unknown

**ParticipantSuperTypeLU Table** (Lookup table for SuperType in ParticipantTypeLU table)

SuperTypeLUID	SuperType
1	Citizen Group
2	Federal
3	Local/City/County
4	Private Industrial
5	Private Non-industrial
6	State
7	Tribes
97	Other

**ParticipantTypeLU Table** (Lookup table for ParticipantType in Participant table)

ParticipantTypeLUID	ParticipantType	SuperType	GovCode
1	conservation group	Citizen Group	Non-government
2	city	Local/City/County	Government
3	contractor	Other	Non-government
4	county	Local/City/County	Government
5	Used for known combined landownership types	Other	Non-government
6	consultant	Other	Non-government
7	educational institutions, schools	Citizen Group	Non-government
8	Extension Service (e.g. OSU Extension)	Citizen Group	Non-government
9	federal agency or jobs program (or ownership)	Federal	Government
10	local agency	Local/City/County	Government
11	local business	Local/City/County	Non-government
12	local organizations (e.g. grassroots, local focus, local job programs)	Local/City/County	Non-government
13	several participants, but funding not separated	Other	Non-government
14	many landowners (type not specified)	Other	Non-government
15	non-profit organization (not specifically CG or SG)	Citizen Group	Non-government
16	private forest industrial landowner	Private Industrial	Non-government
17	private non-industrial landowner	Private Non-industrial	Non-government
18	permittee or leaseholder	Private Non-industrial	Non-government
19	research	Citizen Group	Non-government
20	state agency or jobs program (or ownership), state universities	State	Government
21	sporting group	Citizen Group	Non-government
22	Small Woodlands Association	Private Non-industrial	Non-government
23	Soil & Water Conservation District	Local/City/County	Government
24	tribal	Tribes	Non-government
25	utilities	Local/City/County	Non-government
26	volunteer	Citizen Group	Non-government
27	watershed council	Local/City/County	Non-government
97	other	Other	Non-government

**ActivityCost Table** (Each project may have several activity cost records)

Field Name	Data Type	Size	Field Description
ActivityCostID	AutoNumber	4	Unique activity cost record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
ActivityTypeLUID	Number (Long)	4	ActivityType LUID from Lookup table: ActivityTypeLU
Cash	Currency	8	Activity cash cost
InKind	Currency	8	Activity inkind cost
NoCostReported	Text	1	An activity was reported, but not a cost (Yes, No).

**ActivityTypeLU Table**

(Lookup table for ActivityType used in several tables)

ActivityTypeLUID	ActivityType	Description
1	Instream	Instream Habitat
2	Riparian	Riparian
3	Fish Passage	Fish Passage
4	Road	Road
5	Upland	Upland, Grazing, and Irrigation Management
6	Wetland	Wetland
7	Estuary	Not currently separating wetland from estuary, so estuary projects may be found under Wetland
8	Combined	May be used in ActivityCost table and ProjType field in GIS, but not ActivityType table
9	Urban	Urban
10	Fish Screening	Added to data form in 2007.
11	Instream Flow	Existing data has been converted. Plan to add to data form (in 2010?) - This change would split Instream activities into Instream Habitat and Instream Flow.
99	Unknown	Not used at this time.

**Comment Table**

(Each project may have zero-several comment records)

Field Name	Data Type	Size	Field Description
CommentID	AutoNumber	4	Unique comment record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
CommentTypeLUID	Number (Long)	4	OWRI comment type. CommentTypeLUID from Lookup table: CommentTypeLU
CommentSubTypeLUID	Number (Long)	4	OWRI comment subtype. CommentSubTypeLUID from Lookup table: CommentSubTypeLU
Comment	Memo		Additional information or comments
AddUpdate	Date/Time		Date stamped: Now()
Originator	Text	25	Origin of Comments if generated by OWRI staff (Last name)

**Goal Table**

(Each project may have several goal records)

Field Name	Data Type	Size	Field Description
GoalID	AutoNumber	4	Unique goal record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
GoalLUID	Number (Long)	4	OWRI habitat restoration projects goal. GoalLUID from Lookup table: GoalLU
OtherGoal	Text	250	Other goal specified
cfsSpecified	Number (Single)	4	Increase stream flow by ____ cu ft/sec

**CommentTypeLU Table** (Lookup table for CommentType in Comment table)

CommentTypeLUID	CommentType	Description
1	Flag	Comment generated by staff about why the project is flagged for follow-up.
2	DataEntry	Comment was generated by staff during data entry.
3	Modification	Comment was generated by staff after data entry was complete & a modification was made to the data.
4	Respondent	Comment was from respondent's original data submission.
5	Follow-upCommunication	Comment was from follow-up communication with respondent or another participant after data entry.
6	QA / QC	Comment was generated by staff to document QA/QC or follow-up that did not result in a modification.
7	MapStatus	Comment generated by staff after follow-up with maps was completed.
8	Private	Comment is not intended to be shared with the public (e.g.contains private landowner info).
9	Reporting	Comment was created for use with specific reports (e.g. PCSRF data upload).

**CommentSubTypeLU Table** (Lookup table for CommentSubType in Comment table)

CommentSubTypeLUID	CommentSubType	Description
1	Attachment	Comment about a non-map item attached to the data form.
2	Cost	Comment about cost: could be project level (total cost), participant funding, or activity cost.
3	FishPassage	Comment about fish passage activity.
4	FWQuestion	Comment about project level fish & wildlife species to benefit question on cover page of data form.
5	Goal	Comment about goal.
6	Instream	Comment about instream activity.
7	Location	Comment about restoration project location information on cover page of data form.
8	Map	Comment about project map.
9	Monitor	Comment about monitor questions.
10	Participant	Comment about participant.
11	PermitNumber	Comment about permit number.
12	Project	Comment about project (project level or cover page comments)
13	Riparian	Comment about riparian activity.
14	Road	Comment about road activity.
15	SpatialDataReview	Comment about mapped projects that may need to be re-mapped.
16	Species	Comment about species data.
17	Upland	Comment about upland activity.
18	Wetland	Comment about wetland activity.
19	Year	Comment about primary project year determination.
20	PCSRF	Comment to be used in PCSRF reporting.

**GoalLU Table**

(Lookup table for Goal in Goal table)

GoalLUID	Goal
1	Improve/increase stream structure & complexity
2	Improve/increase stream interaction with floodplain
3	Improve/increase stream flow
4	Improve/increase stream gravel recruitment
5	Improve/increase fish passage
6	Improve/increase stream spawning habitat
7	Improve/increase stream rearing habitat
8	Improve/increase stream pools
9	Improve/increase stream off-channel habitat
10	Improve/increase stream over-winter habitat
11	Improve/increase stream summer habitat
13	Improve/increase stream cool water habitat
14	Improve/increase stream slow water habitat
15	Improve/increase stream refuge cover
16	Increase future LWD recruitment to stream
17	Increase future stream shading/increase vegetation to provide shade
18	Increase streambank stabilization/protection
19	Increase nutrient input to stream (e.g. plant material, salmon carcasses)
20	Decrease erosion/stream sedimentation
21	Decrease run-off contaminant input
22	Decrease stream temperature
23	Increase wildlife habitat (vegetation for food, cover, or nesting)
24	Increase upslope stability (soil, road)
25	Increase road/upslope drainage
28	Decrease road access
29	Decrease road density
30	Decrease livestock access to stream
31	Increase storage capacity of wetland
32	Increase wetland vegetation for flood control
33	Increase net area of wetland
34	Increase the number of wetland types at site
35	Increase wetland connection to adjacent natural area
36	Increase native plant species composition
37	Increase upland water storage capacity
38	Decrease washout/diversion potential at stream crossings
39	Improve flood/slide repair
40	Education
41	Increase vegetation to filter runoff
42	Increase water to stream during low flows
43	Increase/improve groundwater recharge
44	Increase/improve water conservation
45	Decrease groundwater contaminant
46	Increase/improve water quality
47	Increase/improve aquatic habitat
97	Other
99	Unknown

**LandUse Table**

(Each project may have several land use records)

Field Name	Data Type	Size	Field Description
LandUseID	AutoNumber	4	Unique land use record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
LandUseLUID	Number (Long)	4	OWRI habitat restoration projects land use. LandUseLUID from Lookup table: LandUseLU
OtherLandUse	Text	250	Other land use specified

**LandUseLU Table**

(Lookup table for LandUse in LandUse table)

LandUseLUID	LandUse
1	Forest
2	Range/pasture
3	Ungrazed grasslands
4	Shrub
5	Cropland
6	Urban industrial/commercial
7	Urban residential
8	Rural residential
9	Recreation
10	Wetland
11	Barren
97	Other
99	Unknown

**Permit Table**

(Each project may have several permit records)

Field Name	Data Type	Size	Field Description
PermitID	AutoNumber	4	Unique permit record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
ActivityTypeLUID	Number (Long)	4	ActivityType LUID from Lookup table: ActivityTypeLU
PermitTypeLUID	Number (Long)	4	Permit type: DSL, ODF
PermitNumber	Text	50	Permit number
PermitDescriptor	Text	10	DSL prefix or suffix reported
Remark	Text	250	

**PermitTypeLU Table**

PermitTypeLUID	PermitType	Description
1	DSL	Department of State Lands
2	ODF	Oregon Department of Forestry
3	ACOE	Army Corps of Engineers
4	OWRD	Oregon Water Resources Department
99	Unknown	

**Result Table**

(Each project may have several result records)

Field Name	Data Type	Size	Field Description
ResultID	AutoNumber	4	Unique result record identifier
PROJNUM	Number (Long)	4	Unique identifier, database record number
ActivityTypeLUID	Number (Long)	4	ActivityType LUID from Lookup table: ActivityTypeLU
ResultLUID	Number (Long)	4	OWRI habitat restoration projects result. ResultLUID from Lookup table: ResultLU
Quantity	Number (Single)	4	Quantity or measure of result identified in the ResultLUID field.
QuantityDetails	Text	250	Quantity details: List values: reported, estimated (based on multiple riparian treatment lengths), quantity not reported
UnitLUID	Number (Long)	4	Unit of measure for quantity field. UnitLUID from Lookup table: UnitLU

**ResultLU Table**

(Lookup table for Result in Result table – see additional reference and instructional columns in the actual ResultLU table in MS Access)

ResultLUID	Result
1	Total number of road/stream crossings improved for fish passage
2	Total miles of fish habitat made accessible (this value is for when unable to separate miles by culvert/crossing improvements vs. non-culvert work)
3	Miles of habitat opened- previously inaccessible for both adults and juveniles
4	Miles of habitat opened- previously inaccessible for juveniles, accessible for adults
5	Miles of habitat previously accessible for adults and juveniles- access improved
6	Miles of stream opened for fish use (1997 reporting form)
7	Total miles of stream treated (instream activities)
8	Total linear stream miles treated (riparian activities)
9	Total acres treated (riparian activities)
10	Total acres treated (upland activities)
11	Opened access to acres of habitat that were previously inaccessible to both adults and juveniles
12	Total number of stream crossings improved for peak flow passage
13	Total number of non-stream crossings improved for surface drainage
14	Total number of stations improved by rocking for surface drainage
15	Total acres treated (wetland activities)
16	Water flow acquired
17	Total miles of fish habitat made accessible due to road/stream crossing improvements (e.g. improvement or removal of culverts and other structures)
18	Total miles of fish habitat made accessible by the removal of barriers other than culverts
19	Flow rate of water diverted by screens
20	Total stream miles protected for adequate flow

**Treatment Table**

(Each project may have several treatment records)

Field Name	Data Type	Size	Field Description
TreatmentID	AutoNumber	4	Unique treatment record identifier links to TreatmentMetric and TreatmentDetail tables
PROJNUM	Number (Long)	4	Unique identifier, database record number
RIPNUM	Text	50	Secondary identifier for riparian data (if necessary) This links landowner & spatial information to treatment
ActivityTypeLUID	Number (Long)	4	ActivityType LUID from Lookup table: ActivityTypeLU
ActivityLUID	Number (Long)	4	Activity LUID from Lookup table: ActivityLU
ActivitySpecified	Memo		Activity specified
TreatmentLUID	Number (Long)	4	Treatment lookup ID
Description	Memo		Description of treatment

**ActivityLU table**

(Lookup table for Activity in Treatment table)

ActivityLUID	Activity
1	Crossing improvement
2	Non-crossing improvement
3	Animal species removal
4	Bank stabilization
5	Beaver introduction
6	Channel alteration
7	Engineered structures
8	Instream habitat (anchored): Structure placement
9	Instream habitat (not anchored): Boulder placement
10	Instream habitat (not anchored): Large wood placement
11	Instream habitat (not anchored): Other placement
12	Instream habitat (unknown whether anchored): Boulder placement
13	Instream habitat (unknown whether anchored): Other placement
14	Instream habitat placement: unknown type
15	Instream water right transfers/leases
16	Off-channel habitat
17	Other instream activity
18	Salmon carcass placement
20	Beaver management
21	Changes in harvest/land management practices
22	Conservation easement
23	Riparian erosion control
25	Riparian invasive plant control
27	Nurse log placement
29	Other riparian activity
30	Riparian fencing
31	Riparian tree planting
32	Riparian vegetation management
33	Riparian vegetation planting
34	Voluntary riparian tree retention

ActivityLUID	Activity
35	Water gap development
36	Riparian conifer restoration (hardwood conversion)
37	Grass seeding
38	Other road activity
39	Peak flow passage improvement
40	Road closure
41	Road decommission
42	Road reconstruction
43	Road relocation
44	Road stabilization
45	Road survey
46	Surface drainage improvement
47	Conservation Buffers
48	Upland erosion control
49	Grazing management
50	Upland invasive plant control
51	Irrigation system improvement
52	Livestock stream access/crossing created or improved
53	No-till agriculture
54	Nutrient management
55	Off-channel livestock or wildlife watering
56	Other upland activity
57	Terracing
58	Upland fencing
59	Upland tree planting
60	Upland vegetation management
61	Upland vegetation planting
62	Voluntary upland tree retention
63	Water/sediment control basins
64	Bioswales
65	Catch basin cleaning
66	Detention facility
67	Urban invasive plant control
68	Other urban activity
69	Pesticide use reduction
70	Storm & sanitary sewer separation
71	Street sweeping
72	Other wetland activity
73	Voluntary wetland tree retention
74	Wetland creation
75	Wetland improvement
76	Wetland restoration
77	Wetland invasive plant control

ActivityLUID	Activity
78	Off-channel flood storage
79	Wet detention facility
80	Fish screening

**TreatmentLU table** (Lookup table for Treatment in Treatment table)

TreatmentLUID	Treatment
1	Alcoves created
2	Alcoves created with tributary/spring input
3	Alcoves created without tributary/spring input
4	Alcoves enhanced
5	Alcoves reconnected or access improved
6	Alcoves: treatment not specified
7	Anchored habitat structures placed
8	Animal species removal
9	Beaver introduction
10	Beaver management
11	Bioswales
12	Boulders placed
13	Brush bundles placed
14	Changes in harvest/land management practices
15	Conservation buffers
16	Conservation easement
17	Culverts added at locations other than above stream crossings
18	Culverts with rock or log weirs installed below outlet
19	Culverts/structures installed to allow side channel access
20	Culverts/structures removed and not replaced
21	Culverts/structures repaired
22	Culverts/structures replaced with bridge
23	Culverts/structures replaced with culverts placed embedded or flat
24	Culverts/structures replaced with open bottom arch culverts
25	Culverts/structures replaced with weir/baffle culverts
26	Culverts/structures retrofitted with baffles or weirs (adding roughness into existing culverts)
27	Dam removed
28	Dam repaired
29	Detention facility
30	Drainage diverted away from cracks (pre-1999 form)
31	Existing culverts with outlet erosion protection added
32	Existing wetland improved
33	Fish ladders improved
34	Fish ladders installed
35	Flow deflector installed: log
36	Flow deflector installed: log and rock/boulder
37	Flow deflector installed: rock/boulder

TreatmentLUID	Treatment
38	Flow deflector installed: unknown type
39	Grass seeding and mulching
40	Other grazing management practice
41	Grazing management: livestock exclusion
42	Grazing management: livestock removal
43	Grazing management: livestock rotation
44	Habitat structures placed: rootwads & boulders
45	Habitat structures placed: rootwads & brush bundles
46	Habitat structures placed: unknown type
47	Instream water right transferred / leased
48	Riparian invasive plant control
49	Irrigation diversions with fish screens installed
50	Other irrigation system improvement
51	Irrigation system improved: converted from dirt ditch to pipeline delivery
52	Irrigation system improved: converted from flood irrigation to gated pipe
53	Irrigation system improved: converted from flood to sprinkler irrigation
54	Irrigation system improved: tailwater collection system improved
55	Irrigation system improved: water measurement devices installed
56	Large landslides stabilized
57	Large wood placed
58	Livestock stream access/crossing created or improved
59	Main stream channel modified / created
60	No-till agriculture
61	Nurse logs placed
62	Nutrient management
63	Off-channel habitat: treatment not specified
64	Off-channel watering sites developed
65	Off-channel ponds created
66	Off-channel ponds created with tributary/spring input
67	Off-channel ponds created without tributary/spring input
68	Off-channel ponds enhanced
69	Off-channel ponds: treatment not specified
70	Other diversions modified
71	Permanent cross-drains added above stream crossings
72	Pool created (unknown method)
73	Pool excavated or blasted
74	Previously filled or drained wetland restored
75	Push-up dams permanently removed
76	Repair/maintenance of existing restoration project structure (non-dam)
77	Riparian conifer restoration (hardwood conversion)
78	Riparian erosion control
79	Riparian fencing
80	Riparian tree planting: conifer

TreatmentLUID	Treatment
81	Riparian tree planting: conifer and hardwood
82	Riparian tree planting: hardwood
83	Riparian tree planting: unknown type
84	Riparian vegetation management
85	Riparian planted/reseeded with riparian plant species (riparian vegetation planting)
86	Road down-cutting ditch rocking
87	Road durable rocking or quality hard road rocking prior to haul
88	Road effectively closed to public use
89	Road obliterated, decommissioned, or vacated
90	Road pulled back and stabilized
91	Road relocated outside RMA or stream banks
92	Road relocated to reduce washout potential
93	Road surveyed
94	Road upgraded/improved (Legacy Road Reconstruction)
95	Rock gabion installed
96	Rootwads placed
97	Other treatment
98	Salmon carcasses placed
99	Unknown
100	Side channels created / excavated
101	Side channels protected
102	Side channels reconnected to stream or access improved
103	Side channels: treatment not specified
104	Spawning gravel placed
105	Other stream bank stabilization technique
106	Stream bank stabilized: bank resloped
107	Stream bank stabilized: bank resloped and rock revetment installed
108	Stream bank stabilized: bioengineering
109	Stream bank stabilized: log and rock revetment installed
110	Stream bank stabilized: log revetment installed
111	Stream bank stabilized: riprap (rock revetment) installed
112	Stream bank stabilized: rock revetment installed
113	Stream bank stabilized: unknown method
114	Stream crossings modified to reduce washout/diversion (pre-1999 form)
115	Structures modified by improving inlet condition
116	Structures replaced to meet 50+ year flow requirements
117	Tidegate replaced or modified
118	Other upland erosion control practice
119	Upland fencing
120	Upland planted/reseeded with upland plant species (upland vegetation planting)
121	Upland terraces installed
122	Upland treated for juniper by clearing, burning, thinning, or removal
123	Upland treated for non-native or noxious plant species

TreatmentLUID	Treatment
124	Upland treated for non-native or noxious plant species that was also planted/reseeded with natives
125	Upland tree planting
126	Upland vegetation management
128	V structure installed: concrete weirs
129	V structure installed: log
130	V structure installed: log and rock/boulder
131	V structure installed: rock/boulder
132	V structure installed: unknown type
133	Voluntary riparian tree retention
134	Voluntary upland tree retention
135	Water gap constructed
136	Water/sediment control basins installed
137	Weir installed (not below culvert): log
138	Weir installed (not below culvert): log and rock/boulder
139	Weir installed (not below culvert): rock/boulder
140	Weir installed (not below culvert): unknown type
141	Wetland created
142	Wetland vegetation planting
144	Voluntary wetland tree retention
145	Tidegate removed and not replaced
146	Off channel flood storage
147	Wet detention facility
148	Storm & sanitary sewer separation
149	Street sweeping
150	Catch basin cleaning
151	Pesticide use reduction
152	Previously filled or drained wetland returned to grass/herb meadow wetland
153	Previously filled or drained wetland returned to shrub or forest wetland
154	Previously filled or drained wetland returned to open water wetland (>6 ft. deep)
155	Non-wetland created into grass/herb meadow wetland
156	Non-wetland created into shrub or forest wetland
157	Non-wetland created into open water wetland (>6 ft. deep)
158	Existing grass/herb meadow wetland improved
159	Existing shrub or forest wetland improved
160	Existing open water wetland (>6 ft. deep) improved
161	Invasive plant control in grass/herb meadow wetland
162	Invasive plant control in shrub or forest wetland
163	Invasive plant control in open water wetland (>6 ft. deep)
164	Previously filled or drained wetland returned to shrub/scrub wetland
165	Previously filled or drained wetland returned to forest wetland
166	Non-wetland created into shrub/scrub wetland
167	Non-wetland created into forest wetland
168	Existing shrub/scrub wetland improved

TreatmentLUID	Treatment
169	Existing forest wetland improved
170	Invasive plant control in shrub/scrub wetland
171	Invasive plant control in forest wetland

**TreatmentMetric Table** (Each treatment may have several treatment metric records)

Field Name	Data Type	Size	Field Description
TreatmentMetricID	AutoNumber	4	Unique treatment metric record ID links to Treatment table
TreatmentID	Number (Long)	4	Treatment record ID link
TreatmentMetricLUID	Number (Long)	4	TreatmentMetric Lookup ID
Quantity	Number (Single)	4	Quantity or measure of treatment identified in the TreatmentID field.
QuantityDetails	Text	250	Quantity details: List values: reported, estimated (based on multiple riparian treatment lengths), quantity not reported
UnitLUID	Number (Long)	4	Unit of measure for quantity field. UnitLUID from Lookup table: UnitLU
UnitDetails	Text	100	Unit details: unit reported that is not on the lookup list

**TreatmentMetricLU table** (Lookup table for TreatmentMetric in TreatmentMetric table)

TreatmentMetricLUID	TreatmentMetric
1	area of treatment
2	number (count) of treatment
3	stream sides treated
4	volume of treatment (e.g. spawning gravel)
5	length of treatment
6	percent urban area affected
7	percent watershed area affected
8	volumetric flow rate

**UnitLU table**

(Lookup table for Unit in Result and TreatmentMetric tables)

UnitLUID	Unit	Description
1	acre	
2	boulder	
3	crossing	
4	cubic yard	
5	culvert	
6	dam	
7	each	Use this LUID when respondent reports "other" unit
8	feet	
9	key piece log	"key piece" as defined in OR Aquatic Habitat Guidelines for Large Wood Placement
10	mile	
11	pool	
12	side	
13	site	
14	station	
15	structure	
16	percent	
17	cfs	
18	acre-foot	
19	alcove	
20	bioswale	
21	brush bundle	
22	catch basin	
23	detention facility	
24	diversion	
25	fish ladder	
26	irrigation diversion	
27	landslide	
28	log	"log" was used when it was unknown whether they fit the key piece definition
29	main channel	
30	off-channel habitat	
31	off-channel pond	
32	push-up dam	
33	rootwad	
34	salmon carcass	
35	side channel	
36	terrace	
37	tidegate	
38	water/sediment control basin	(WASCBs)
39	watergap	
40	watering location	
41	wet detention facility	

UnitLUID	Unit	Description
42	pound	

**TreatmentDetail Table** [Details for instream large wood placements, instream natural boulder placements, instream anchored structure placements, **planting or invasive plant control treatments**, and stream characteristics at LWD, BLD, and riparian fencing sites]

Field Name	Data Type	Size	Field Description
TreatmentDetailID	AutoNumber	4	Unique TreatmentDetail record identifier
TreatmentID	Number (Long)	4	<b>Unique identifier for treatment record (treatment record ID link)</b>
LogLnth	Text	10	Log length in feet (could be an average of a range of sizes)
LogDiam	Text	10	Log diameter in inches (could be an average of a range of sizes)
AvgKey	Number (Long)	4	Average # of key pieces per structure
NumberKeySize	Number (Long)	4	Number of key pieces that were at least 33 feet long and 24" in diameter
AddRtw	Text	1	Placed with additional rootwads? Or, smaller materials placed with key pieces?
RtwIntact	Text	1	Rootwads intact?
Source	Text	100	Source of logs or source of naturally placed boulders
Method	Text	100	Method of placement (backhoe, excavator, helicopter, etc.)
ForestOp	Text	1	Associated with a forestry operation? Basal area credit?
BfwLow	Number (Long)	4	Lower stream bankfull width in feet
BfwUp	Number (Long)	4	Upper stream bankfull width in feet
GradientReported	Text	20	Stream gradient at treatment site was ____ %
Bfd	Text	10	Stream bankfull depth where logs or boulders were placed was ____ ft
BldrSize	Text	50	Average size of naturally placed boulders in cubic yards
LogsUsed	Text	1	Anchored structure materials: logs
RtwUsed	Text	1	Anchored structure materials: rootwads
BldrsUsed	Text	1	Anchored structure materials: boulders
OtherUsed	Text	1	Anchored structure materials: other
OtherUsedSpecified	Text	100	Other anchored structure materials specified
AncBldrs	Text	1	Anchored with boulders?
AncCable	Text	1	Anchored with cable?
AncRebar	Text	1	Anchored with rebar?
AncOther	Text	1	Anchored with "other"
AncOtherSpecified	Text	100	Other anchor type specified
SetbackLow	Number (Long)	4	Lower setback of riparian fence in feet
SetbackUp	Number (Long)	4	Upper setback of riparian fence in feet
BhLow	Number (Long)	4	Lower bank height in feet
BhUp	Number (Long)	4	Upper bank height in feet
UpLnth	Number (Long)	4	Upper size log length in feet
UpDiam	Number (Long)	4	Upper size log diameter in inches
ConiferUsed	Text	1	Conifer (this question is no longer asked)
HardwoodUsed	Text	1	Hardwood (this question is no longer asked)
BranchesIntact	Text	1	Branches intact? (this question is no longer asked)
PlacementType	Text	100	"Natural" or "Natural and Anchored" placement
PlacementDetails	Text	100	For natural placement, details are for whether logs were allowed to set up naturally or wedged against bank or riparian trees. List values: natural, wedged, natural and wedged, unknown
<b>TreatmentCashCost</b>	Currency	8	<b>Cash cost</b>

TreatmentInkindCost	Currency	8	Inkind cost
SpeciesPlanted	Text	255	Species planted (trees, shrubs, etc.)
SpeciesRemoved	Text	255	Invasive plant species removed

### InstreamWaterRight Table

(Details for instream water right transfers/leases)

Field Name	Data Type	Size	Field Description
WaterRightID	AutoNumber	4	Unique water right record identifier
TreatmentID	Number (Long)	4	Unique identifier for treatment record
Landowner	Text	100	Landowner
PriorityDate	Text	100	Priority Date
RateReported	Text	100	Rate (cfs) text (could be a range of values)
Rate	Number	4	Rate (cfs) number
AcqType	Text	100	Type of Acquisition
ReachPoint	Text	100	Stream Reach/Point
Term	Text	50	Term (years)
Renewal	Text	1	Project is a renewal. List values: Y, N
RenewalReported Year	Number (Long)	4	Year that renewal was reported

### RiparianVtrRcrTable

(Each project may have several records in this table)

Field Name	Data Type	Size	Field Description
HarvestMeasureID	AutoNumber	4	Unique harvest measure (RiparianVtrRcr) record identifier
TreatmentID	Number (Long)	4	Treatment record ID link
Area	Number (Long)	4	Which treatment area is this record describing? 1, 2, 3, 4, etc.
ODF62	Text	1	ODF Harvest Measure 62
ODF19	Text	1	ODF Harvest Measure 19
ODF20	Text	1	ODF Harvest Measure 20
ODF22	Text	1	ODF Harvest Measure 22
22a	Text	1	ODF Harvest Measure 22a
22b	Text	1	ODF Harvest Measure 22b
22c	Text	1	ODF Harvest Measure 22c
LengthMiles	Number (Single)	4	trees retained along ____ miles of stream
WidthFeet	Number (Long)	4	width of leave tree area in feet
StreamSidesTreated	Number (Long)	4	Values: 1 or 2; unknown number of sides receives a value of 1
BestAcres	Number (Single)	4	leave tree area in acres : 1) acres (reported) 2) acres estimated from [L x (W/5280) x 640] x # of sides (one or two) 3) acres estimated from [SideA_L x (BestWidth/5280) x 640]+[SideB_L x (BestWidth/5280) x 640]
QuantityAcresDetail	Text	50	Best acres quantity was: reported, estimated, quantity not reported (ie. not enough info to be calculated/estimated by OWRI staff)
RMAWidth	Number (Long)	4	RMA width based on stream type and size (reported) - may not have been populated for newer projects
StreamSize	Text	1	stream size: S, M, or L
StreamType	Text	1	stream type: N, F, or D
Description	Text	250	Description

**WetlandConnection Table** (Each wetland project should have one or several records in this table)

Field Name	Data Type	Size	Field Description
ConnectionID	AutoNumber	4	Unique identifier for connection record
PROJNUM	Number (Long)	4	Unique identifier, database record number
ActivityTypeLUID	Number (Long)	4	ActivityTypeLUID from Lookup table: ActivityTypeLU
ConnectionLUID	Number (Long)	4	ConnectionLUID from Lookup table: WetlandConnectionLU

**WetlandConnectionLU Table** (Lookup table for WetlandConnection in WetlandConnection table)

ConnectionLUID	Connection
1	stream or river
2	lake or reservoir
3	other fresh waters
4	ocean or estuary
5	no other water body
97	other
99	unknown

**WetlandCondition Table** (Each wetland activity should have one or several records in this table)

Field Name	Data Type	Size	Field Description
ConditionID	AutoNumber	4	Unique identifier for condition record
PROJNUM	Number (Long)	4	Unique identifier, database record number
ActivityTypeLUID	Number (Long)	4	ActivityTypeLUID from Lookup table: ActivityTypeLU
ActivityLUID	Number (Long)	4	Activity LUID from Lookup table: ActivityLU
ConditionLUID	Number (Long)	4	Condition after treatment = ConditionLUID from Lookup table: WetlandConditionLU
BeforeAfter	Text	1	List values: Before, After

**WetlandConditionLU Table** (Lookup table for WetlandCondition in WetlandCondition table)

ConditionLUID	Condition
1	non-wetland
2	agricultural wetland
3	grass/herb meadow wetland
4	shrub or forest wetland
5	open water wetland (>6ft. deep)
6	palustrine emergent marsh
7	shrub/scrub wetland
8	forest wetland
97	other
99	unknown

**Species Table** (If SpeciesBenefit = yes, there should be one or more records in this table)

Field Name	Data Type	Size	Description
SpeciesID	AutoNumber	4	Unique identifier for Species record
PROJNUM	Number (Long)	4	Unique identifier, database record number
SpeciesLUID	Number (Long)	4	Species Look-up ID from SpeciesLU table
RunName	Text	250	
OtherSpeciesName	Text	250	
Remark	Text	250	
ActivityTypeID	Number (Long)	4	Null = project level (fish or wildlife species to benefit), 3 = fish passage (target fish species question answered under fish passage information)

**SpeciesTypeLU Table** (Lookup table for SpeciesType in SpeciesLU table)

SpeciesTypeLUID	SpeciesType
1	Fish
2	Bird
3	Mammal
4	Amphibian
5	Reptile
99	other

**SpeciesLU Table** (Lookup table for Species in Species table - Note: This table is based on data received, which are predominately fish species. We anticipate that we will be expanding this species lookup list to include more bird and mammal species that may currently be found in the SpeciesName entries: “Bird (other)” and “Mammal (other)”; with the species name recorded in “OtherSpeciesName” data field in the Species table)

SpeciesLUID	SpeciesName	ScientificName	SpeciesTypeLUID
1	Coho Salmon	<i>Oncorhynchus kisutch</i>	1
2	Steelhead	<i>Oncorhynchus mykiss</i>	1
3	Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	1
4	Cutthroat Trout	<i>Oncorhynchus clarki</i>	1
5	Rainbow Trout	<i>Oncorhynchus mykiss</i>	1
6	Chum Salmon	<i>Oncorhynchus keta</i>	1
7	American Beaver	<i>Castor canadensis</i>	3
8	Fish species (unspecified)	<i>Osteichthyes</i>	1
9	Lamprey (unspecified)	<i>Petromyzontidae</i>	1
10	Redband Trout		1
11	Bull Trout	<i>Salvelinus confluentus</i>	1
12	Salmon (unspecified)	<i>Salmonidae</i>	1
13	Trout (unspecified)	<i>Salmonidae</i>	1
14	All salmonid species present (unspecified)	<i>Salmonidae</i>	1
15	Wildlife species (unspecified)		99
16	All species		99
17	Amphibian species (unspecified)	<i>Amphibia</i>	4
18	Anadromous fish (unspecified)		1
19	Bird species (unspecified)	<i>Aves</i>	2
20	Bald Eagle	<i>Haliaeetus leucocephalus</i>	2
21	Columbian White-tailed Deer	<i>Odocoileus virginianus leucurus</i>	3
22	deer		3
23	Dunn's Salamander	<i>Plethodon dunni</i>	4
24	elk	<i>Cervus canadensis</i>	3
25	Reptile species (unspecified)	<i>Reptilia</i>	5
26	Macroinvertebrates (unspecified)		99
27	Mule Deer	<i>Odocoileus hemionus</i>	3
28	Northern Pike Minnow (Squaw)	<i>Ptychocheilus oregonensis</i>	1
29	Northern Spotted Owl	<i>Strix occidentalis</i>	2
30	Oregon Chub	<i>Oregonichthys crameri</i>	1
31	Osprey	<i>Pandion haliaetus</i>	2
32	Pacific Giant Salamander	<i>Dicamptodon tenebrosus</i>	4
33	Pronghorn Antelope	<i>Antilocapra americana</i>	3
34	Red-legged Frog	<i>Rana aurora</i>	4
35	Rocky Mountain Elk	<i>Cervus canadensis nelsoni</i>	3
36	Mountain Whitefish	<i>Prosopium williamsoni</i>	1
37	Sculpin (unspecified)	<i>Cottidae</i>	1
38	Goose Lake Sucker	<i>Catostomus occidentalis lacusanserinus</i>	1

SpeciesLUID	SpeciesName	ScientificName	SpeciesTypeLUID
39	Sturgeon (unspecified)	Acipenseridae	1
40	Sucker (unspecified)	Catostomidae	1
41	Jenny Creek Sucker		1
42	waterfowl		2
43	Western Pond Turtle	Actinemys marmorata	5
44	Roosevelt Elk	Cervus canadensis roosevelti	3
45	Neotropical birds		2
46	Lost River Sucker	Deltistes luxatus	1
47	Shortnose Sucker	Chasmistes brevirostris	1
48	Warner Sucker	Catostomus warneri	1
49	Brown Trout	Salmo trutta	1
50	Kokanee Salmon (Land-locked Sockeye)	Oncorhynchus nerka	1
51	Pacific Lamprey	Lampetra tridentata	1
52	Brook Lamprey	Lampetra richardsoni	1
53	Mammal species (unspecified)	Mammalia	3
54	White Breasted Nuthatch	Sitta carolinensis	2
55	Western Bluebird	Sialia mexicana	2
56	Fish species (other)	Data collection field on form	1
57	Bird species (other)	Data collection field on form	2
58	Mammal species (other)	Data collection field on form	3
59	Amphibian species (other)	Data collection field on form	4
60	Reptile species (other)	Data collection field on form	5
61	Insect species (other)		99
62	Macroinvertebrates (other)		99
63	Longnose Sucker		1
97	other		99
99	unknown		99
100	Western Meadowlark	Sturnella neglecta	2
101	Sage Grouse	Centrocercus urophasianus	2
102	Speckled Dace	Rhinichthys osculus	1
103	Acorn Woodpecker	Melanerpes formicivorus	2
104	Pileated Woodpecker	Dryocopus pileatus	2
105	Vesper Sparrow	Poocetes gramineus	2
106	Wild Turkey	Meleagris gallopavo	2
107	Mountain Quail	Oreortyx pictus	2
108	California Quail	Callipepla californica	2
109	Chukar	Alectoris chukar	2
111	Ring-necked Pheasant	Phasianus colchicus	2
112	Ruffed Grouse	Bonasa umbellus	2
113	Peregrine Falcon	Falco peregrinus	2
114	American Kestrel	Falco sparverius	2
115	Northern Harrier	Circus cyaneus	2
117	Red-tailed Hawk	Buteo jamaicensis	2

SpeciesLUID	SpeciesName	ScientificName	SpeciesTypeLUID
118	Sharp-shinned Hawk	Accipiter striatus	2
119	Barn Owl	Tyto alba	2
120	Great Horned Owl	Bubo virginianus	2
121	Great Blue Heron	Ardea herodias	2
122	White-faced Ibis	Plegadis chihi	2
123	Kingfisher	Megaceryle alcyon	2
125	Long-billed Curlew	Numenius americanus	2
126	Brook Trout	Salvelinus fontinalis	1
127	River Otter	Lutra canadensis	3
128	Raccoon	Procyon lotor	3
129	Mountain Lion	Puma concolor	3
131	Lynx	Lynx canadensis	3
132	Bobcat	Lynx rufus	3
133	Black bear	Ursus americanus	3
134	Badger	Taxidea taxus	3
135	Mink	Mustela vison	3
136	Muskrat	Ondatra zibethicus	3
137	Coyote	Canis Latrans	3
138	Bighorn Sheep	Ovis canadensis	3
139	Western Gray Squirrel	Sciurus griseus	3
140	Porcupine	Erethizon dorsatum	3
141	Red Fox	Vulpes vulpes	3
142	California Myotis	Myotis californicus	3
143	Canada Goose	Branta canadensis	2
144	Snow Goose	Chen caerulescens	2
145	Trumpeter Swan	Cygnus buccinator	2
146	Wood Duck	Aix sponsa	2
147	Ruddy Duck	Oxyura jamaicensis	2
148	Mallard	Anas platyrhynchos	2
149	Yellow Warbler	Dendroica petechia	2
150	Savanah Sparrow	Passerculus sandwichensis	2
151	Yellow-headed Blackbird	Xanthocephalus xanthocephalus	2
153	Willow Flycatcher	Empidonax traillii	2
154	Northern Pygmy-Owl	Glaucidium gnoma	2
155	Western Wood-Pewee	Contopus sordidulus	2
156	Western Scrub-Jay	Aphelocoma californica	2
157	Tundra Swan	Cygnus columbianus	2
159	Snowy Egret	Egretta thula	2
160	Yellow-breasted Chat	Icteria virens	2
161	Purple Martin	Progne subis	2
162	Tree Swallow	Tachycineta bicolor	2
163	Sandhill Crane	Grus canadensis	2
164	Ensatina Salamander	Ensatina eschscholtzii	4

SpeciesLUID	SpeciesName	ScientificName	SpeciesTypeLUID
165	Long-toed Salamander	Ambystoma macrodactylum	4
166	Tailed Frog	Ascaphus truei	4
167	Pacific Tree Frog	Hyla regilla	4
168	Spotted Frog	Rana pretiosa	4
169	Foothill Yellow-legged Frog	Rana boylei	4
170	Northwestern Salamander	Ambystoma gracile	4
171	Tiger Salamander	Ambystoma tigrinum	4
172	Rough-skinned Newt	Taricha granulosa	4
173	Painted Turtle	Chrysemys picta	5
174	Western Skink	Plestiodon skilonianus	5
175	Ringneck Snake	Diadophis punctatus	5
176	Sharptail Snake	Contia tenuis	5
177	Fender's Blue Butterfly	Icaricia icarioides fenderi	99
178	Taylor's Checkerspot Butterfly	Euphydryas editha taylori	99
179	Redside Shiner	Richardsonius balteatus	1
180	Largemouth Bass	Micropterus salmoides	1
181	Redear Sunfish	Lepomis microlophus	1
182	Pit-Klamath Brook Lamprey	Lampetra lethophaga	1
183	Pit Roach	Lavinia symmetricus mitrulus	1
184	Goose Lake Lamprey	Lampetra tridentata ssp.	1
185	Goose Lake Tui Chub	Gila bicolor thalassina	1
186	Pit Sculpin	Cottus pitensis	1
187	Klamath Largescale Sucker	Catostomus snyderi	1
189	Klamath Smallscale Sucker	Catostomus rimiculus	1
190	Band-tailed Pigeon	Patagioenas fasciata	2
191	House Wren	Troglodytes aedon	2
192	Modoc Sucker	Catostomus microps	1
193	Slender Sculpin	Cottus tenuis	1
194	Three-spine Stickleback	Gasterosteus aculeatus	1
195	Black-tailed Deer	Odocoileus columbianus	3
196	Sharp-tailed Grouse	Tympanuchus phasianellus	2
197	Burrowing Owl	Athene cucularia	2
198	Vagrant Shrew	Sorex vagrans	3
199	Virginia Opossum	Didelphis virginiana	3
202	Wild Horses	Equus ferus caballus	3
203	Dusky Canada Goose	Branta canadensis occidentalis	2
204	Brant Goose	Branta bernicla	2
205	Streaked Horned Lark	Eremophila alpestris strigata	2
206	Blue Grouse	Dendragapus obscurus	2

**Appendix A – Associative Tables**

**ActivityTypeLUXActivityLUXTreatmentLU table**

(Associative table between ActivityType, Activity, and Treatment lookup tables)

ActivityTypeLUID	ActivityLUID	TreatmentLUID	active
1	3	8	Y
1	4	105	Y
1	4	106	Y
1	4	107	Y
1	4	108	Y
1	4	109	Y
1	4	110	Y
1	4	111	Y
1	4	113	N
1	6	59	Y
1	6	72	N
1	6	73	Y
1	6	104	Y
1	7	35	Y
1	7	36	Y
1	7	37	Y
1	7	38	N
1	7	72	N
1	7	95	N
1	7	128	Y
1	7	129	Y
1	7	130	Y
1	7	131	Y
1	7	132	N
1	7	137	Y
1	7	138	Y
1	7	139	Y
1	7	140	N
1	8	7	Y
1	9	12	Y
1	10	57	Y
1	11	13	Y
1	11	44	N
1	11	45	N
1	11	96	Y
1	12	12	N
1	13	13	N
1	13	44	N
1	13	45	N

ActivityTypeLUID	ActivityLUID	TreatmentLUID	active
1	13	96	N
1	14	46	N
1	16	1	N
1	16	2	Y
1	16	3	Y
1	16	4	N
1	16	5	N
1	16	6	N
1	16	63	N
1	16	65	N
1	16	66	Y
1	16	67	Y
1	16	68	N
1	16	69	N
1	16	100	Y
1	16	101	N
1	16	102	Y
1	16	103	N
1	17	27	N
1	17	76	N
1	17	97	Y
1	18	98	Y
2	4	105	N
2	4	106	N
2	4	108	N
2	4	110	N
2	4	112	N
2	20	10	Y
2	21	14	N
2	22	16	N
2	23	78	N
2	25	48	Y
2	27	61	Y
2	29	97	Y
2	29	142	N
2	30	79	Y
2	31	80	Y
2	31	81	Y
2	31	82	Y
2	31	83	N
2	32	84	Y
2	33	85	Y
2	34	133	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	active
2	35	135	Y
2	36	77	Y
2	54	62	N
3	1	18	Y
3	1	20	Y
3	1	21	Y
3	1	22	Y
3	1	23	Y
3	1	24	Y
3	1	25	Y
3	1	26	Y
3	1	97	Y
3	2	19	Y
3	2	27	Y
3	2	28	Y
3	2	33	Y
3	2	34	Y
3	2	49	N
3	2	70	Y
3	2	75	Y
3	2	97	Y
3	2	117	Y
3	2	145	Y
4	37	39	Y
4	38	97	Y
4	39	20	Y
4	39	114	N
4	39	115	Y
4	39	116	Y
4	40	88	Y
4	41	89	Y
4	42	94	Y
4	42	97	N
4	43	91	Y
4	43	92	Y
4	44	30	N
4	44	56	Y
4	44	90	Y
4	44	97	N
4	45	93	Y
4	46	17	Y
4	46	31	Y
4	46	71	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	active
4	46	86	Y
4	46	87	Y
4	46	97	N
5	47	15	Y
5	48	118	Y
5	49	40	Y
5	49	41	N
5	49	42	N
5	49	43	Y
5	50	123	Y
5	50	124	Y
5	51	50	Y
5	51	51	Y
5	51	52	Y
5	51	53	Y
5	51	54	Y
5	51	55	Y
5	52	58	Y
5	53	60	Y
5	54	62	Y
5	55	64	Y
5	56	97	Y
5	57	121	Y
5	58	119	Y
5	59	125	Y
5	60	122	Y
5	60	126	Y
5	61	120	Y
5	62	134	Y
5	63	136	Y
6	3	8	N
6	72	97	Y
6	72	99	N
6	73	144	N
6	74	141	N
6	74	155	Y
6	74	156	N
6	74	157	Y
6	74	166	Y
6	74	167	Y
6	75	32	N
6	75	158	Y
6	75	159	N

ActivityTypeLUID	ActivityLUID	TreatmentLUID	active
6	75	160	Y
6	75	168	Y
6	75	169	Y
6	76	74	N
6	76	152	Y
6	76	153	N
6	76	154	Y
6	76	164	Y
6	76	165	Y
6	77	161	Y
6	77	162	N
6	77	170	Y
6	77	171	Y
9	64	11	Y
9	66	29	Y
9	67	48	N
9	68	97	Y
9	78	146	Y
6	77	163	Y
9	79	147	Y
9	70	148	Y
9	71	149	Y
9	65	150	Y
9	69	151	Y
10	80	49	Y
11	15	47	Y

### TreatmentLUXTreatmentMetricLUXUnitLU table

(Associative table between Treatment, TreatmentMetric, and Unit lookup tables)

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
1	16	1	2	19	Y	Y
1	16	2	2	19	Y	Y
1	16	3	2	19	Y	Y
1	16	4	2	19	Y	Y
1	16	5	2	19	Y	Y
1	16	6	2	19	Y	Y
1	8	7	2	15	Y	Y
1	3	8	2	7	Y	Y
1	3	8	1	1	Y	N
1	3	8	4	18	Y	N
9	64	11	6	16	Y	Y
9	64	11	2	20	Y	Y
9	64	11	1	1	Y	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
1	12	12	2	2	Y	Y
1	13	13	2	21	Y	Y
2	21	14	5	10	Y	Y
5	47	15	5	10	Y	Y
5	47	15	1	1	Y	Y
2	22	16	1	1	Y	Y
2	22	16	5	10	Y	Y
2	22	16	3	12	Y	Y
4	46	17	2	5	Y	Y
3	1	18	2	5	Y	Y
3	2	19	2	15	Y	Y
3	1	20	2	5	Y	Y
4	39	20	2	15	Y	Y
3	1	21	2	5	Y	Y
3	1	21	2	15	Y	Y
3	1	22	2	5	Y	Y
3	1	23	2	5	Y	Y
3	1	24	2	5	Y	Y
3	1	25	2	5	Y	Y
3	1	26	2	5	Y	Y
3	2	27	2	6	Y	Y
3	2	28	2	6	Y	Y
9	66	29	2	41	Y	Y
9	66	29	1	1	Y	Y
4	44	30	5	14	Y	Y
4	46	31	2	5	Y	Y
6	75	32	1	1	Y	Y
3	2	33	2	25	Y	Y
3	2	34	2	25	Y	Y
1	7	35	2	15	Y	Y
1	7	36	2	15	Y	Y
1	7	37	2	15	Y	Y
1	7	38	2	15	N	N
4	37	39	5	10	Y	Y
5	49	40	1	1	Y	Y
5	49	41	1	1	Y	Y
5	49	42	1	1	Y	Y
5	49	43	1	1	Y	Y
1	13	44	2	15	Y	Y
1	13	45	2	15	Y	Y
1	14	46	2	15	N	Y
2	25	48	3	12	Y	Y
2	25	48	1	1	Y	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
2	25	48	5	10	Y	Y
10	80	49	2	26	Y	Y
5	51	50	1	1	Y	Y
5	51	50	5	8	Y	N
5	51	50	8	17	Y	N
5	51	51	1	1	Y	Y
5	51	51	5	8	Y	N
5	51	52	5	8	Y	N
5	51	52	1	1	Y	Y
5	51	53	1	1	Y	Y
5	51	54	1	1	Y	Y
5	51	55	1	1	Y	Y
4	44	56	2	27	Y	Y
1	10	57	2	28	N	Y
1	10	57	2	15	Y	Y
1	10	57	2	9	Y	Y
5	52	58	2	3	Y	Y
1	6	59	5	8	Y	Y
1	6	59	2	29	Y	Y
5	53	60	1	1	Y	Y
2	27	61	2	28	Y	Y
5	54	62	5	10	Y	N
5	54	62	1	1	Y	Y
5	54	62	3	12	Y	N
5	54	62	2	15	Y	N
1	16	63	2	30	Y	Y
5	55	64	2	40	Y	Y
1	16	65	2	31	Y	Y
1	16	66	2	31	Y	Y
1	16	67	2	31	Y	Y
1	16	68	2	31	Y	Y
1	16	69	2	31	Y	Y
3	2	70	2	24	Y	Y
4	46	71	2	15	Y	Y
1	7	72	2	11	N	Y
1	6	73	2	11	Y	Y
6	76	74	1	1	Y	Y
3	2	75	2	32	Y	Y
1	17	76	2	15	Y	Y
2	23	78	5	10	Y	Y
2	23	78	5	8	Y	Y
2	30	79	5	10	Y	Y
2	30	79	1	1	Y	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
2	30	79	3	12	Y	Y
2	31	80	5	10	Y	Y
2	31	80	1	1	Y	Y
2	31	80	3	12	Y	Y
2	31	81	1	1	Y	Y
2	31	81	5	10	Y	Y
2	31	81	3	12	Y	Y
2	31	82	5	10	Y	Y
2	31	82	1	1	Y	Y
2	31	82	3	12	Y	Y
2	31	83	1	1	N	Y
2	31	83	3	12	N	Y
2	31	83	5	10	N	Y
2	32	84	1	1	Y	Y
2	32	84	5	10	Y	Y
2	32	84	2	7	Y	Y
2	32	84	3	12	Y	Y
2	33	85	5	10	Y	Y
2	33	85	1	1	Y	Y
2	33	85	3	12	Y	Y
4	46	86	5	14	Y	Y
4	46	87	5	14	Y	Y
4	40	88	5	14	Y	Y
4	41	89	5	14	Y	Y
4	44	90	5	14	Y	Y
4	43	91	5	14	Y	Y
4	43	92	5	14	Y	Y
4	45	93	5	10	Y	Y
4	42	94	5	14	Y	Y
1	7	95	2	15	Y	Y
1	13	96	2	33	Y	Y
1	17	97	2	7	Y	N
1	17	97	5	8	Y	N
1	17	97	5	10	Y	N
1	17	97	2	33	Y	N
1	17	97	2	31	Y	N
1	17	97	2	29	Y	N
1	17	97	2	15	Y	N
1	17	97	2	42	Y	N
1	17	97	2	21	Y	N
1	17	97	2	11	Y	N
1	17	97	2	2	Y	N
1	17	97	4	4	Y	N

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
1	17	97	2	35	Y	N
1	17	97	2	9	Y	N
1	17	97	2	19	Y	N
2	29	97	5	10	Y	N
2	29	97	2	7	Y	N
2	29	97	1	1	Y	N
2	29	97	3	12	Y	N
2	29	97	2	39	Y	N
3	2	97	2	25	Y	N
3	2	97	2	5	Y	N
3	2	97	2	7	Y	N
3	2	97	2	24	Y	N
3	2	97	2	15	Y	N
3	2	97	2	32	Y	N
4	46	97	2	15	Y	N
4	46	97	5	10	Y	N
4	46	97	2	5	Y	N
4	46	97	2	7	Y	N
4	46	97	5	14	Y	N
5	56	97	2	13	Y	N
5	56	97	2	3	Y	N
5	56	97	2	15	Y	N
5	56	97	2	7	Y	N
5	56	97	5	8	Y	N
5	56	97	1	1	Y	N
5	56	97	5	10	Y	N
6	72	97	1	1	Y	N
6	72	97	2	6	Y	N
9	68	97	2	15	Y	N
9	68	97	1	1	Y	N
9	68	97	2	20	Y	N
9	68	97	2	7	Y	N
9	68	97	7	16	Y	N
9	68	97	5	10	Y	N
1	18	98	2	13	Y	N
1	18	98	2	42	Y	Y
1	18	98	2	34	Y	Y
1	18	98	5	10	Y	Y
6	72	99	1	1	N	N
1	16	100	2	35	Y	Y
1	16	100	5	8	Y	Y
1	16	101	2	35	Y	Y
1	16	101	5	8	Y	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
1	16	102	5	8	Y	Y
1	16	102	2	35	Y	Y
1	16	103	2	35	Y	Y
1	6	104	4	4	Y	Y
1	4	105	5	10	Y	Y
1	4	106	5	10	Y	Y
1	4	106	3	12	N	N
1	4	106	1	1	N	N
1	4	107	5	10	Y	Y
1	4	108	3	12	N	N
1	4	108	5	10	Y	Y
1	4	109	5	10	Y	Y
1	4	110	5	10	Y	Y
1	4	111	5	10	Y	Y
1	4	112	5	10	Y	Y
1	4	113	5	10	N	Y
4	39	114	2	3	Y	Y
4	39	115	2	15	Y	Y
4	39	116	2	15	Y	Y
3	2	117	2	37	Y	Y
5	48	118	5	10	Y	Y
5	48	118	1	1	Y	Y
5	58	119	5	8	Y	N
5	58	119	5	10	Y	N
5	58	119	1	1	Y	Y
5	61	120	1	1	Y	Y
5	57	121	5	8	Y	Y
5	57	121	2	36	Y	Y
5	57	121	1	1	Y	Y
5	60	122	1	1	Y	Y
5	50	123	1	1	Y	Y
5	50	124	1	1	Y	Y
5	59	125	1	1	Y	Y
5	60	126	2	7	Y	Y
5	60	126	1	1	Y	Y
1	7	128	2	15	Y	Y
1	7	129	2	15	Y	Y
1	7	130	2	15	Y	Y
1	7	131	2	15	Y	Y
1	7	132	2	15	N	Y
2	34	133	1	1	Y	N
2	34	133	5	10	Y	N
2	34	133	3	12	Y	N

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
5	62	134	1	1	Y	Y
2	35	135	2	39	Y	Y
2	35	135	5	10	Y	N
2	35	135	1	1	Y	N
5	63	136	1	1	Y	Y
5	63	136	2	38	Y	Y
1	7	137	2	15	Y	Y
1	7	138	2	15	Y	Y
1	7	139	2	15	Y	Y
1	7	140	2	15	N	Y
6	74	141	1	1	Y	Y
2	29	142	5	10	N	N
2	29	142	3	12	N	N
2	29	142	1	1	N	N
6	73	144	1	1	Y	Y
3	2	145	2	37	Y	Y
9	78	146	7	16	Y	Y
9	78	146	2	7	Y	Y
9	79	147	2	41	Y	Y
9	79	147	6	16	Y	Y
9	70	148	6	16	Y	Y
9	70	148	5	8	Y	Y
9	71	149	5	10	Y	Y
9	71	149	6	16	Y	Y
9	65	150	6	16	Y	Y
9	65	150	2	22	Y	Y
9	69	151	1	1	y	Y
9	69	151	6	16	Y	Y
6	76	152	1	1	Y	Y
6	76	153	1	1	Y	Y
6	76	154	1	1	Y	Y
6	74	155	1	1	Y	Y
6	74	156	1	1	Y	Y
6	74	157	1	1	Y	Y
6	75	158	1	1	Y	Y
6	75	159	1	1	Y	Y
6	75	160	1	1	Y	Y
6	77	161	1	1	Y	Y
6	77	162	1	1	Y	Y
6	77	163	1	1	Y	Y
6	76	164	1	1	Y	Y
6	76	165	1	1	Y	Y
6	74	166	1	1	Y	Y

ActivityTypeLUID	ActivityLUID	TreatmentLUID	TreatmentMetricLUID	UnitLUID	active	required
6	74	167	1	1	Y	Y
6	75	168	1	1	Y	Y
6	75	169	1	1	Y	Y
6	77	170	1	1	Y	Y
6	77	171	1	1	Y	Y