

# Metadata for Oregon Birds Data Sets

## *Overview:*

This document provides a brief description of the Oregon birds data set, including a separate description of each of the six relational data sets.

## *Source:*

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## *Details:*

### **1. Bird.visit**

This data set is derived from bird.raw using the script dataprep.R and contains a single record for each station (plot) and each visit (survey number), including several observation covariates pertaining to the survey (e.g., weather conditions) in addition to the number of bird detections within 50 m of plot center by species.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
sta	station (plot) number [integer, 1-38]
visit	visit (survey) number [integer, 1-4]
year	year of survey [integer, 1990-1992]
date	Julian date [integer, 119-193]
time	time of day, hours-minutes [integer, 507-1045]
obs	categorical indicator for observer [integer, 1-10]
cloud	percent cloud cover [integer, 0-100]
precip	precipitation level [integer, 0-2] 0=None; 1=Drizzle; 2=Light Rain
wind	wind level on the Beaufort scale [integer, 0-3] 0=None; 1=Light Breeze (leaves in motion); 2=Breezy (small branches in motion); 3=Windy (large branches/trees in motion)
bird species	Remaining columns represent the number of individuals by species detected within 50 m of plot center, including new and repeat detections; see Appendix A for a list of bird acronyms [numeric]

**2. Bird.sta**

This data set is derived from `bird.visit` using the script `dataprep.R` and contains a single record for each station (plot), including a relational header (basin, sub and sta) in addition to the maximum number of bird detections per visit to a station.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
sta	station (plot) number [integer, 1-38]
bird species	next block of columns represent the maximum number of individuals detected per visit to a station by species, including all new and repeat detections within 50 m of plot center; see Appendix A for a list of bird acronyms [numeric]
b.total	total number of birds detected per station based on the sum of the individual species counts above [numeric]
b.rich	total number of species (richness) detected per station pooled across visits [numeric]
b.sidi	Simpson's diversity index based on the individual species counts above [numeric]

**3. Bird.sub**

This data set is derived from `bird.raw` using the script `dataprep.R` and contains a single record for each subbasin (sub), including a relational header (basin and sub) in addition to the maximum number of bird detections per visit to a subbasin standardized by the number of stations.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
tsta	total number of stations (plots), used to standardize the bird count data [integer, 32-38]
bird species	Remaining columns represent the maximum number of individuals detected per visit to a subbasin standardized by the number of stations by species, including only "new" detections per visit to a subbasin at any distance from plot center (including fly-overs); in other words, the maximum number of new individuals per visit to a subbasin is calculated first and then it is divided by the number of stations; see Appendix A for a list of bird acronyms [numeric]
b.total	total number of birds detected per subbasin based on the sum of the individual

	species counts above [numeric]
b.rich	total number of species (richness) detected per subbasin pooled across visits [numeric]
b.sidi	Simpson's diversity index based on the individual species counts above [numeric]

#### 4. Hab.sta

This data set contains a single record for each station (plot), including a relational header (basin, sub and sta) in addition to a large number of plot-level geographic and bio-physical variables.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
sta	station (plot) number [integer, 1-38]
lat	latitude in UTM (m) [numeric]
long	longitude in UTM (m) [numeric]
elev	elevation (m) [numeric, 85-872]
slope	percent slope (%) [numeric, 0-110]
aspect	aspect (degrees) [numeric, 0-360]
s.id	categorical indicator for stand id within each subbasin, where each stand is a disjunct patch based on seral stage [integer,1-24]
s.edge	categorical indicator for stand edge; i.e., whether the plot center is within 50 m from the nearest seral stage edge [factor] I=interior (>50 m from stand edge); E=edge (<= 50 m from edge)
p.edge	categorical indicator for patch edge; i.e., whether the plot center is within 50 m from the nearest patch edge based on 27 patch types differentiated on the basis of floristic community, seral stage and canopy closure [factor] I=interior (>50 m from stand edge); E=edge (<= 50 m from edge)
p.edge	total length (m) of patch edge within 50 m radius circular plot based on 27 patch types differentiated on the basis of floristic community, seral stage and canopy closure [integer, 0-267]
p.cwedge	total length (m) of contrast-weighted patch edge within 50 m radius circular plot based on 27 patch types differentiated on the basis of floristic community, seral stage and canopy closure [integer, 0-196]

ba.con	basal area of conifers (m2 per ha) [integer, 0-129]
ba.hard	basal area of hardwoods (m2 per ha) [integer, 0-184]
ba.snag	basal area of snags (m2 per ha) [integer, 0-138]
ba.tot	basal area of trees, live and dead (m2 per ha) [integer, 0-207]
ba.ratio	basal area ratio of conifers to hardwoods (percent conifer) [integer, 0-100] 0=100% of basal area is hardwood; 100=100% of basal area is conifer
snag.sml	Total number of small, medium and large snag (>4 in dbh; >2 m tall) of any decay class (1-5) within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-393]
snag.ml	Total number of medium and large snags (>12 in dbh; >2 m tall) of any decay class (1-5) within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-141]
snag.l	Total number of large snags (>20 in dbh; >2 m tall) of any decay class (1-5) within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-85]
snag.dc1	Total number of small, medium and large snags (>4 in dbh; >2 m tall) of decay class 1 within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-216]
snag.dc2	Total number of small, medium and large snags (>4 in dbh; >2 m tall) of decay class 2 and 3 within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-212]
snag.dc4	Total number of small, medium and large snags (>4 in dbh; >2 m tall) of decay class 4 and 5 within 30 m of plot center, including both full (100% dead) and partial (<100% dead) snags meeting minimum size criteria [integer, 0-134]

## 5. Hab.patch

This data set contains a single record for each station (plot), including a relational header (basin, sub and stand id) in addition to a large number of stand-level geographic and bio-physical variables.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
s.id	categorical indicator for stand id within each subbasin, where each stand is a disjunct patch based on seral stage [integer,1-24]

s.lat	average stand latitude in UTM (m) [numeric]
s.long	average stand longitude in UTM (m) [numeric]
s.elev	average stand elevation (m) [numeric, 160-850]
s.type	categorical indicator for stand type [factor] B=barren; GF=grass/forb; SH=shrubland; SA=sapling; PO=pole; LS=large sawtimber
s.area	stand area (ha), where each stand is a disjunct patch based on seral stage [numeric, 4.03-281.3]
s.shape	stand shape index (unitless), where each stand is a disjunct patch based on seral stage [numeric, 1.11-2.85]
s.core	stand core area (ha) based on variable depth-of-edge effects, where each stand is a disjunct patch based on seral stage [numeric, 0-211.6]
s.cai	stand core area index (%) based on variable depth-of-edge effects, where each stand is a disjunct patch based on seral stage [numeric, 0-76.57]
s.teci	stand total edge contrast index (%) based on variable edge contrast weights, where each stand is a disjunct patch based on seral stage [numeric, 2.3-90.76]

## 6. Hab.sub and Hab.sub.missing

This data set contains a single record for each subbasin, including a relational header (basin and sub) in addition to a large number of subbasin-level geographic and bio-physical variables. The hab.sub.missing data set simply contains a couple of missing values, including for demonstration purposes.

Variable	Description
basin	categorical indicator for basin [factor]
sub	categorical indicator for subbasin [factor]
sub.lat	average subbasin latitude in UTM (m) [numeric]
sub.long	average subbasin longitude in UTM (m) [numeric]
sub.elev	average subbasin elevation (m) [integer, 160-850]
road.den	road density (km/km <sup>2</sup> ) [integer, 1-36]
stream.den	stream density (km/km <sup>2</sup> ) [integer, 23-51]
ta	total area of subbasin (ha) [numeric, 247.91-296.07]

p.mps	patch-based mean patch size (ha), where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.tcai	patch-based total core area index (%) based on variable depth-of-edge effects, where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.sidi	patch-based simpson's diversity index (proportion), where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.siei	patch-based simpson's evenness index (proportion), where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.contag	patch-based contagion index (%), where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.ed	patch-based edge density (m/ha), where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.cwed	patch-based contrast-weighted edge density (m/ha) based on variable edge contrast weights, where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
p.teci	patch-based total edge contrast index (%) based on variable edge contrast weights, where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.mps	stand-based mean patch size (ha), where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.tcai	stand-based total core area index (%) based on variable depth-of-edge effects, where each patch is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.sidi	stand-based simpson's diversity index (proportion), where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.siei	stand-based simpson's evenness index (proportion), where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.contag	stand-based contagion index (%), where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.ed	stand-based edge density (m/ha), where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]

s.cwed	stand-based contrast-weighted edge density (m/ha) based on variable edge contrast weights, where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
s.teci	stand-based total edge contrast index (%) based on variable edge contrast weights, where each stand is a disjunct patch based on floristic community, seral stage and canopy closure [numeric]
b through w	these columns represent the percent of the subbasin (%) in each land cover type. See Appendix B for a list of land cover types [numeric]

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**Appendix A.** Bird Acronyms in alphabetical order

American Crow=AMCR	Hermit Thrush=HETH
American Dipper=AMDI	Hooded Merganser=HOME
American Kestrel=AMKE	House Finch=HOFI
American Robin=AMRO	House Wren=HOWR
American Goldfinch=AMGO	Hutton's Vireo=HUVI
Bald Eagle=BAEA	Lesser Goldfinch=LEGO
Band-tailed Pigeon=BTPI	MacGill. Warbler=MGWA
Bank Swallow=BKSW	Mallard=MALL
Barn Swallow=BASW	Marbled Murrelet=MAMU
Belted Kingfisher=BEKI	Marsh Wren=MAWR
Bewick's Wren=BEWR	Mountain Quail=MOQU
Black-throated Gray=BGWA	Mourning Dove=MODO
Black-cap Chickadee=BCCH	Nashville Warbler=NAWA
Black-headed Grosbeak=BHGR	Northern Flicker=NOFL
Blue Grouse=BUGR	O-crowned Warbler=OCWA
Brewer's Blackbird=BRBL	Olive-sd Flycatcher=OSFL
Brown Creeper=BRCR	Osprey=OSPR
Brown-headed Cowbird=BHCO	Pileated Woodpecker=PIWO
Bushtit=BUSH	Pine Siskin=PISI
California Quail=CAQU	Purple Finch=PUFI
Cedar Waxwing=CEWA	Pygmy Owl=PYOW
Chestnut-bk Chickadee=CBCH	Red Crossbill=RECR
Chipping Sparrow=CHSP	Red-Tailed Hawk=RTHA
Common Crow=COCR	Red-br Sapsucker=RBSA
Common Raven=CORA	Red-br Nuthatch=RBNU
Common Snipe=COSN	Red-winged Blackbird=RWBL
Common Merganser=COME	Rough-winged Swallow=RWSW
Common Nighthawk=CONI	Ruby-cr Kinglet=RCKI
Common Yellowthroat=COYE	Ruffed Grouse=RUGR
Cooper's Hawk=COHA	Rufous Humingbird=RUHU
Dark-eyed Junco=DEJU	Rufous-sided Towhee=RSTO
Dipper=DIPP	Saw-whet Owl=SWOW
Downy Woodpecker=DOWO	Screech Owl=SCOW
Evening Grosbeak=EVGR	Scrub Jay=SCJA
Fox Sparrow=FOSP	Sharp-Shinned Hawk=SSHA
Golden-cr Kinglet=GCKI	Solitary Vireo=SOVI
Golden-cr Sparrow=GCSP	Song Sparrow=SOSP
Goshawk=GOSH	Spotted Owl=SPOW
Gray Jay=GRJA	Steller's Jay=STJA
Great Blue Heron=GBHE	Swaision's Thrush=SWTH
Great Horned Owl=GHOW	Townsend's Warbler=TOWA
Hairy Woodpecker=HAWO	Townsend's Solitaire=TOSO
Hammond's Flycatcher=HAFL	Tree Swallow=TRSW
Hermit Warbler=HEWA	Turkey Vulture=TUVU



Varied Thrush=VATH  
Vaux's Swift=VASW  
Violet-green Swallow=VGSW  
Warbling Vireo=WAVI  
Western Bluebird=WEBL  
Western Meadowlark=WEME  
Western Wood Pewee=WWPE  
Western Flycatcher=WEFL  
Western Tanager=WETA  
White-br Nuthatch=WBNU  
White-cr Sparrow=WCSP  
Willow Flycatcher=WIFL  
Wilson's Warbler=WIWA  
Winter Wren=WIWR  
Wood Duck=WODU  
Wrentit=WREN  
Yellow-rumped Warbler=YRWA  
Yellow Warbler=YEWA

**Appendix B.** Land cover type classification system.

**PLANT COMMUNITY:** All patches have a designated plant community.

<u>Nonforested</u>	Areas that do not support forest vegetation because of natural or human-induced conditions.
Water	Open water (e.g. ponds, lakes).
Herbaceous wetlands	Bogs, marshes, and meadows dominated by herbaceous plants and having a site potential for minimal shrub cover (<60% woody cover); generally dominated by rushes, sedges, and grasses.
Hardwood/shrubby wetlands	Wetlands dominated by woody vegetation with woody crown cover >60%; commonly dominated by alder, bigleaf maple, willows, or Oregon ash.
Grass-forb dry hillsides	Grasslands with <40% woody cover; mainly caused by humans who control the tree or shrub vegetation to maintain the area in permanent pasture.
Brush fields	Brush-dominated areas that will remain in brush unless some sort of disturbance alters the site and makes tree growth possible.
<u>Forested</u>	Areas that support forest vegetation.
Hardwood dominated	>70% hardwood (red alder) composition.
Conifer dominated	>70% conifer composition.
Conifer-hardwood mixed	<70% hardwood or conifer composition.

**SERAL CONDITION:** All forested plant communities have a designated seral condition.

Grass-forb	Shrubs <sup>a</sup> : <40% crown cover; <1.5 m mean height Trees <sup>a</sup> : <20% crown cover; <3 m mean height; <2.5 cm mean dbh
Shrub	Shrubs: >40% crown cover any height Trees: <20% crown cover; <3 m mean height; <2.5 cm mean dbh
Sapling	Trees: >20% crown cover

	Conifers: >3 m mean height; 2.5-10.1 cm mean dbh Hardwoods: 3-15 m mean height; 2.5-10.1 cm mean dbh
Pole	Trees: >20% crown cover Conifers: >3 m mean height; 10.2-30.4 cm mean dbh Hardwoods: 3-15 m mean height; 10.2-30.4 cm mean dbh
Small sawtimber	Trees: >20% cover; 30.5-53.2 cm mean dbh
Large sawtimber	Trees: >20% cover; >53.2 cm mean dbh
<b>CANOPY CLOSURE:</b>	All forested plant communities with sapling and pole seral condition have a designated canopy closure condition.
Open canopy	20-70% tree crown cover
Closed canopy	70-100% tree crown cover

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<sup>a</sup>Shrubs and trees were distinguished on the basis of the characteristic life form associated with each species and not on the basis of plant size.

Based on the above classification system, land cover was classified into the following patch types:

b	brush field	mls	mixed large sawtimber forested
ccp	conifer closed pole forested	mop	mixed open pole forested
ccs	conifer closed sapling forested	mos	mixed open sapling forested
cf	conifer forested	msh	mixed shrub forested
cls	conifer large sawtimber forested	mss	mixed small sawtimber forested
cop	conifer open pole forested	po	pole forested
cos	conifer open sapling forested	sa	sapling forested
csf	conifer shrub forested	sh	shrub forested
g	grass/forb dry hillside	ss	small sawtimber forested
gf	grass-forb forested	w	water
hcp	hardwood closed pole forested		
hf	hardwood forested		
hls	hardwood large sawtimber forested		
hop	hardwood open pole forested		
hsh	hardwood shrub forested		
hss	hardwood small sawtimber forested		
hsw	hardwood shrubby wetland		
hw	herbaceous wetland		
ls	large sawtimber forested		
mcp	mixed closed pole forested		
mcs	mixed closed sapling forested		
mf	mixed forested		
mgf	mixed grass-forb forested		