

Powell Butte Grassland Bird Surveys: The First 3 Years

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Conservation InSight



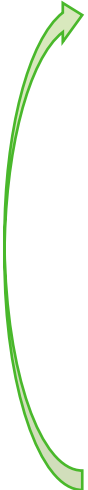
Conservation InSight

- We are a 501(c)(3) nonprofit scientific research organization focused on providing sound solutions for avian conservation issues.
- Conservation InSight was founded in 2017 with the goal of finding innovative ways to share scientific research with the public in order to foster a better connection between people and nature.
- Please visit our website for more information:

www.conservationinsight.org



Impact of Habitat Restoration on Bird Populations at Powell Butte Nature Park

- Demographic Study
 - Research goals:
 - Assess grassland habitat quality at PBNP by studying indicator species breeding at the site.
 - Focal species = Savannah Sparrow (SAVS) + other grassland birds.
 - Determine status and distribution of SAVS and other grassland birds at PBNP.
 - Study breeding populations and compare demographic rates (e.g., nest success, survivorship, etc.) over time as restoration advances at the site.
 - Community Science Surveys
 - Research goals:
 - Assess the impact of habitat restoration on bird populations at PBNP.
 - Collect data on entire bird community at PBNP (not just focal grassland species).
 - Collect additional data on focal species.
 - **Community participation in scientific research.**
- 

Impact of Habitat Restoration on Bird Populations at Powell Butte Nature Park

- Reservoir 1
 - Pre-Restoration
(April 2021)



Grassland
Bird Nest



Impact of Habitat Restoration on Bird Populations at Powell Butte Nature Park

- Reservoir 1
 - Construction
(February 2022)



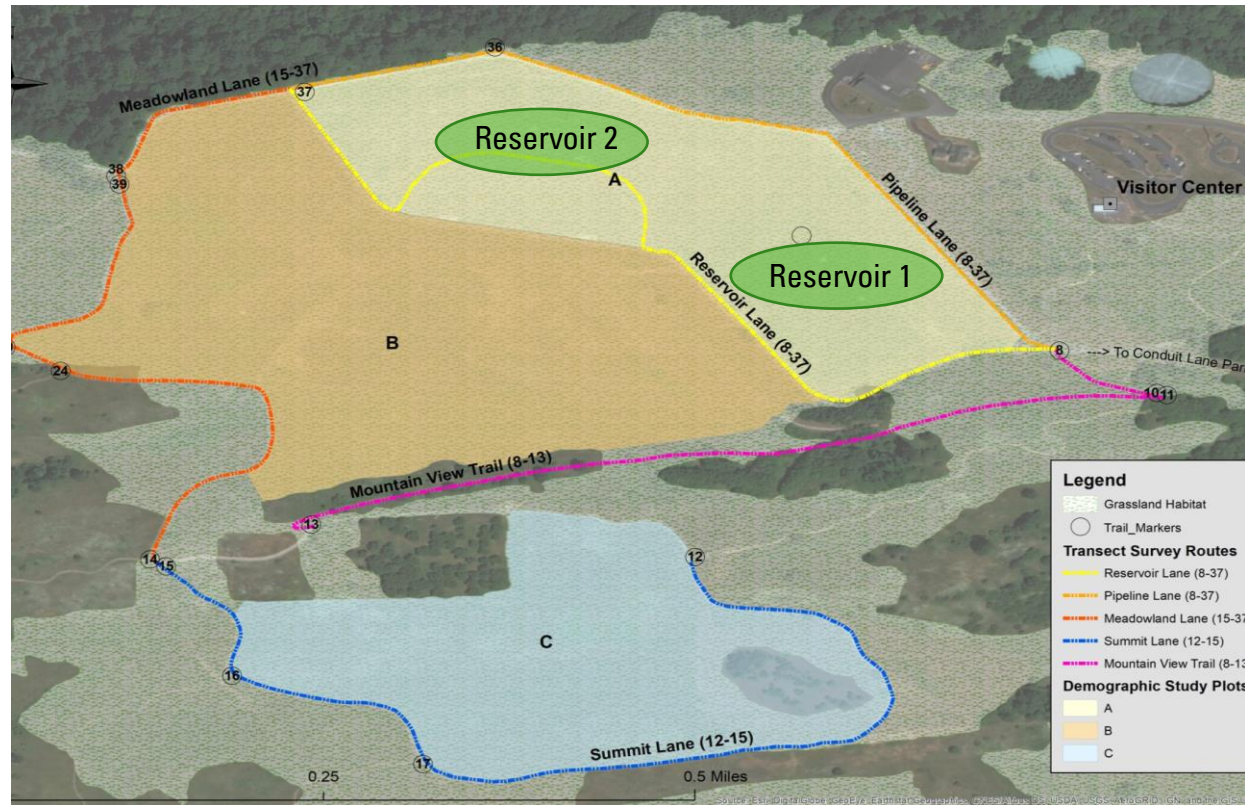
Impact of Habitat Restoration on Bird Populations at Powell Butte Nature Park

- Reservoir 1
 - Restoration
(Goal > 2023)



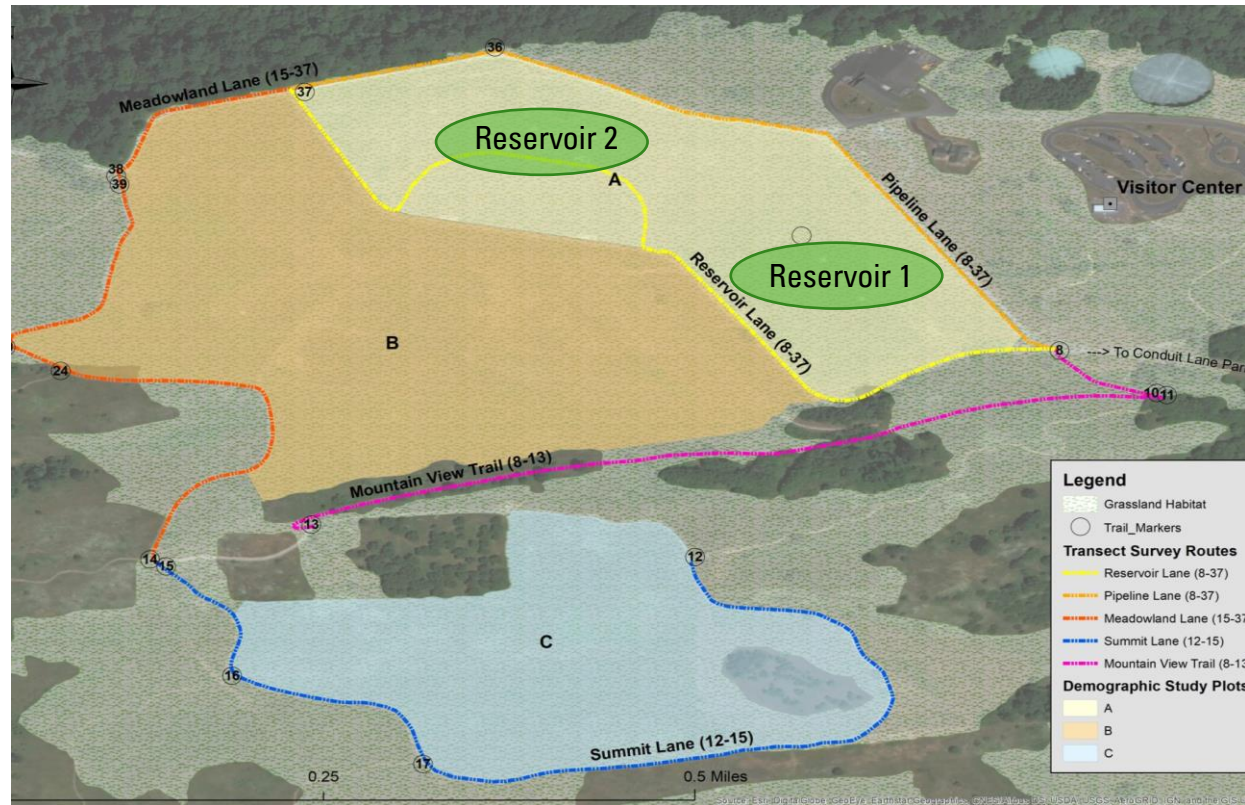
Grassland Bird Monitoring Study Design 2019

- **Demographic Monitoring**
 - Plot A
 - Reservoir 1 – nonnative grasses
 - Reservoir 2 – more native plants
 - Plot B
 - Adjacent grassland
 - More woody vegetation
 - Plot C
 - Southern side of PBNP
 - More invasive plants



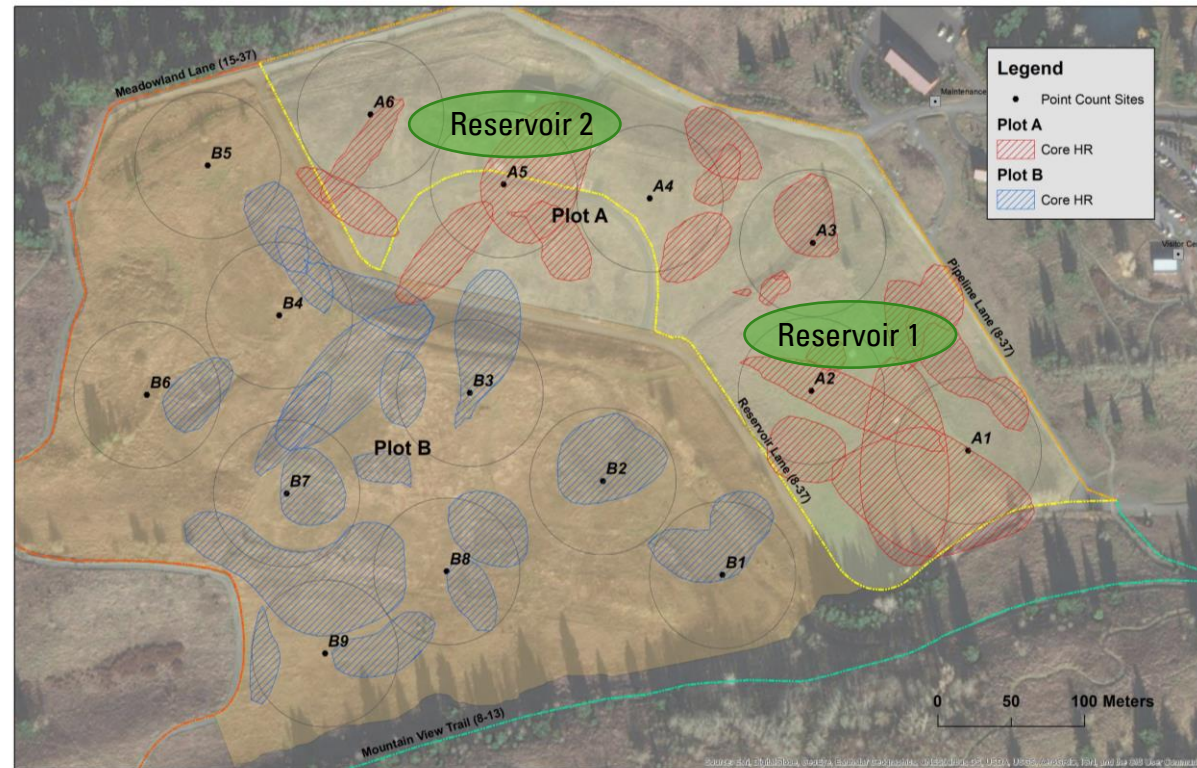
Grassland Bird Monitoring Study Design 2019

- **Community Science Surveys**
 - 5 survey routes
 - Survey area coincides with demographic study plots
 - Transect surveys
 - Duration: 30-45 min
 - Season: April-June
 - Count all birds detected (eBird)



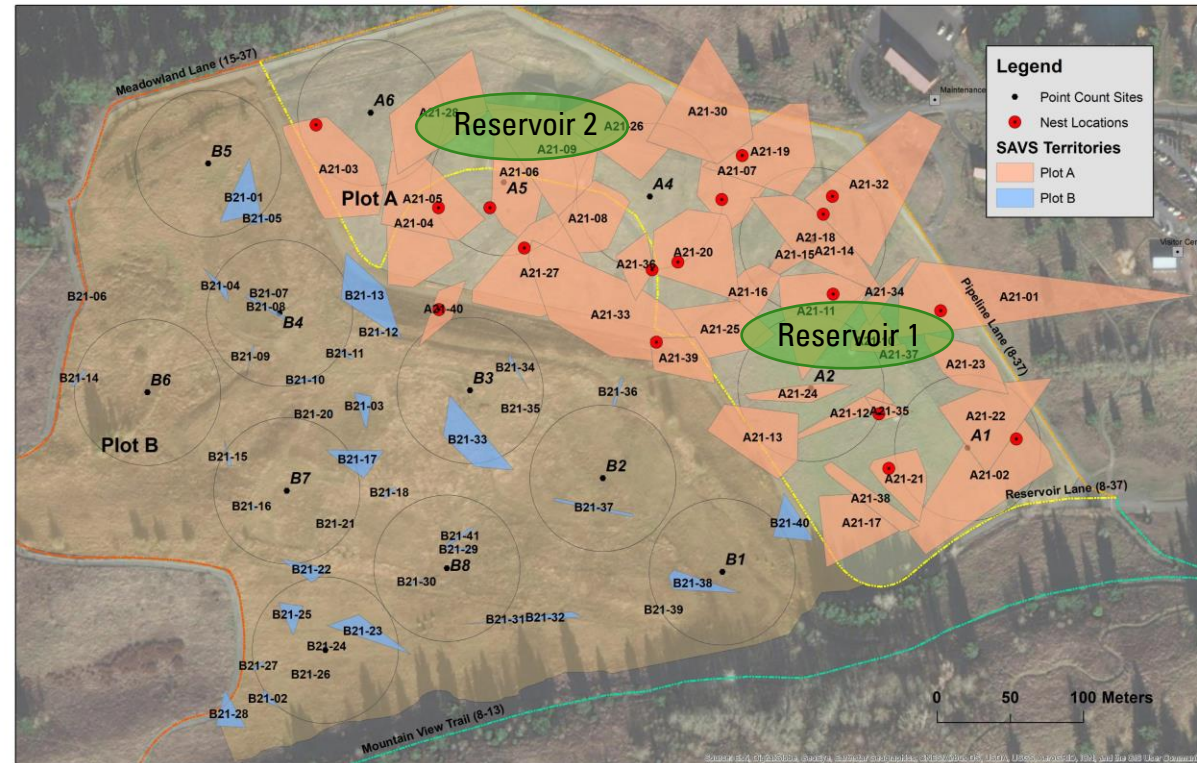
Savannah Sparrows 2019 Territory Mapping

- Plot A
 - 19 breeding pairs
- Plot B
 - 18 breeding pairs
- Plot C (not shown)
 - Similar density



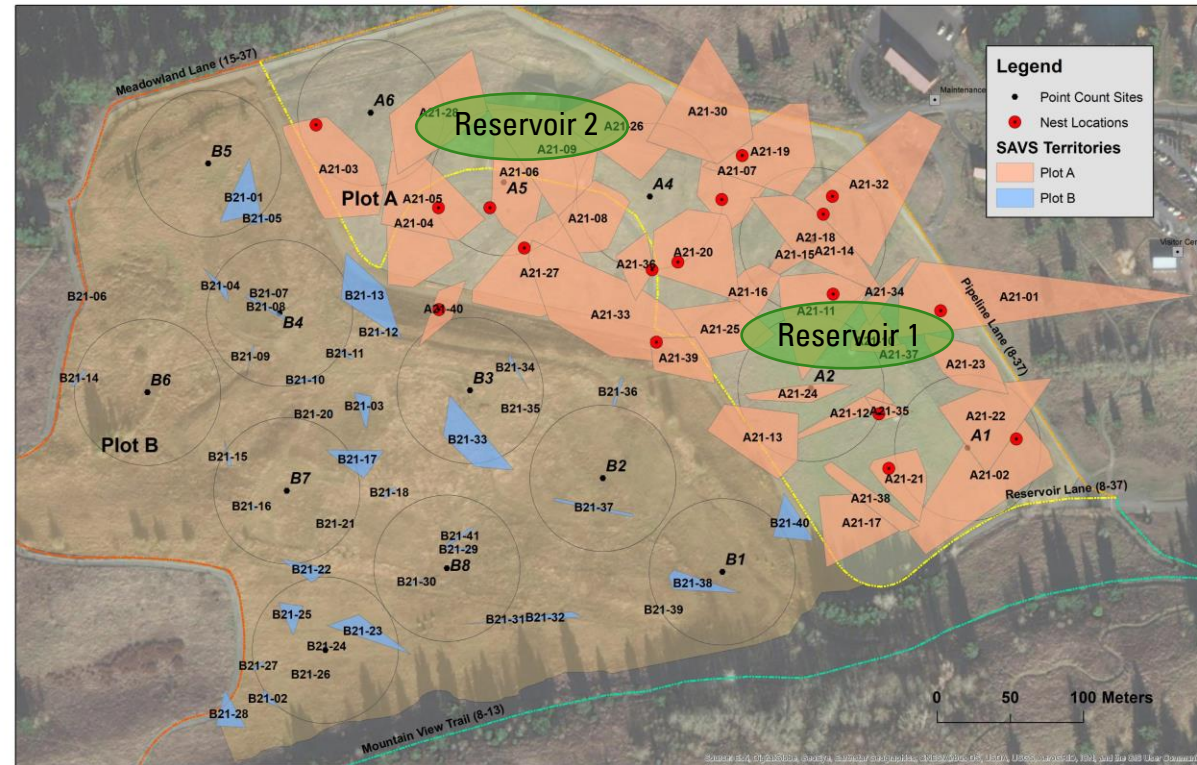
Savannah Sparrows 2021 Territory Mapping

- Plot A
 - 35 breeding pairs (↑ 84%)
 - Reservoir 1 = 18 pairs
 - Reservoir 2 = 17 pairs
- Plot B
 - 41 male territories (↑ 128%)
 - Breeding not monitored
- Plot C
 - No demographic monitoring



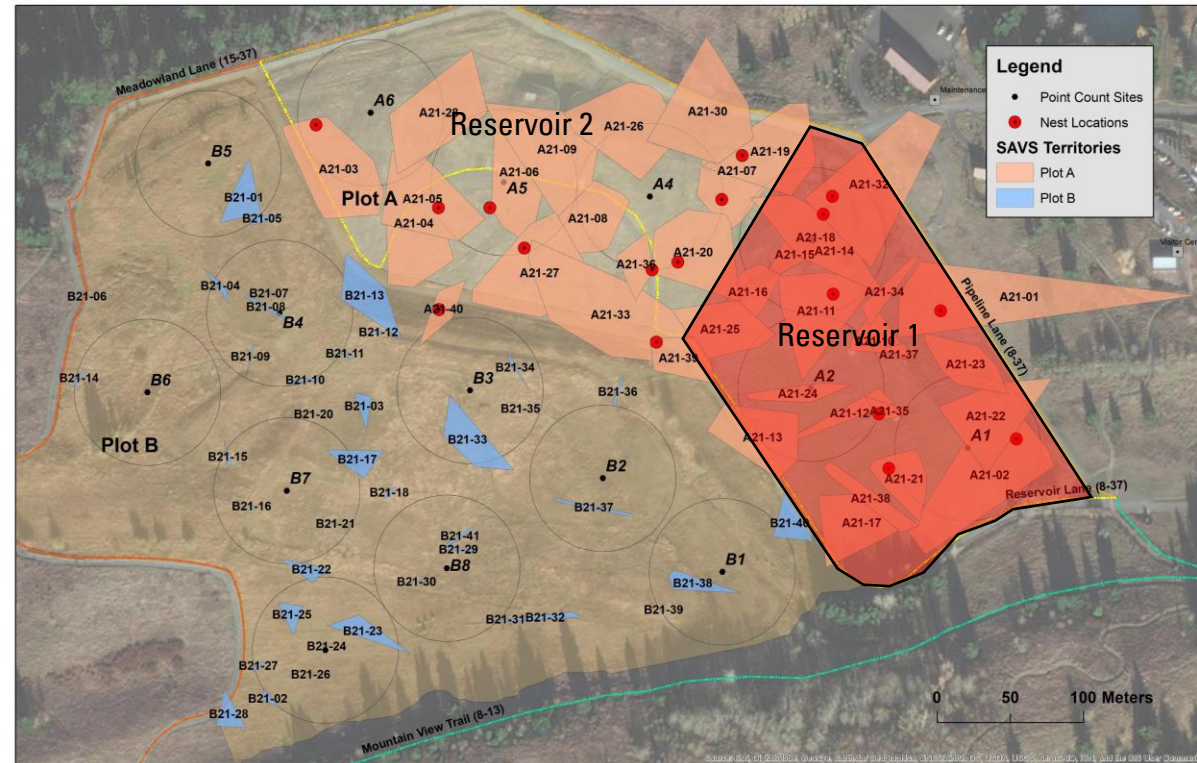
Management Actions to Protect Birds 2021-2022

- **Our data informed management to take these actions:**
 - Construction schedule modified by Portland Water Bureau to protect breeding birds in 2021
 - Habitat management by Portland Parks and Recreation to increase suitable breeding habitat for 2022
 - Breeding bird surveys by Portland BES to further inform construction activity planned for 2022



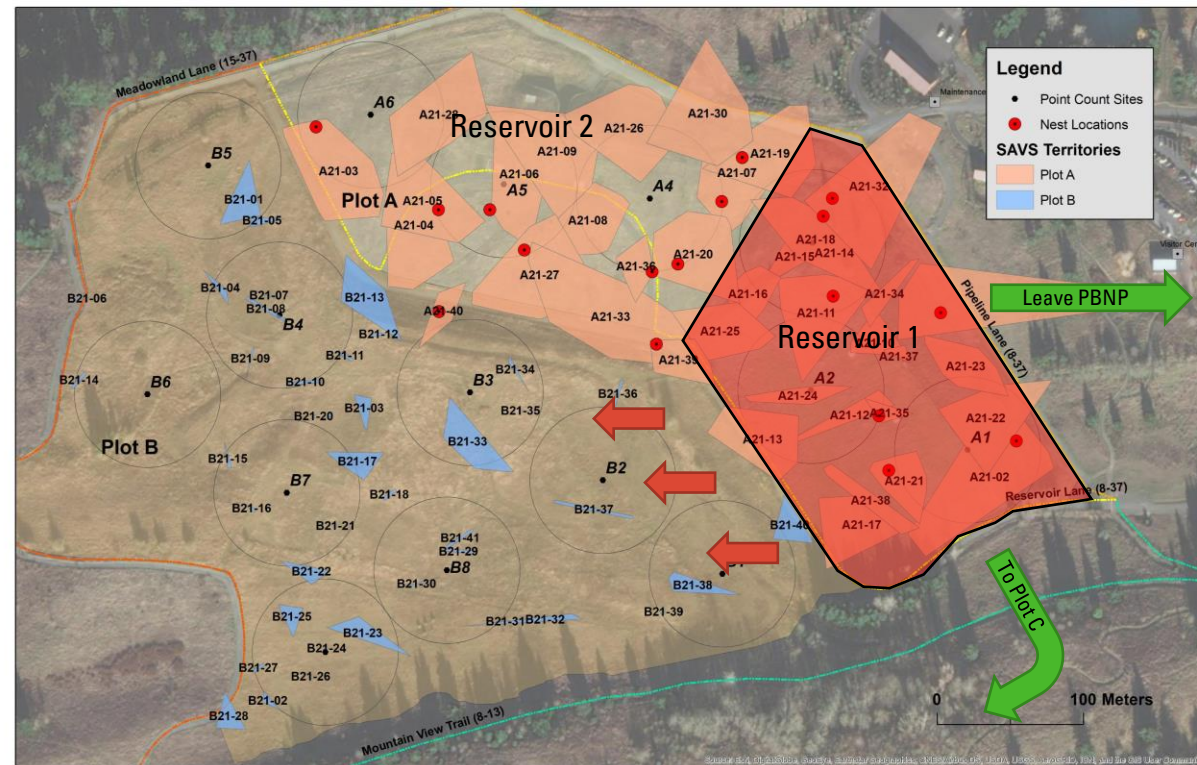
Savannah Sparrows 2022 (?)

- Plot A
 - Res 1 **unavailable** in 2022
 - Res 2 likely at carrying capacity
- Plot B
 - Near carrying capacity in 2021
 - Habitat management potentially increased breeding habitat



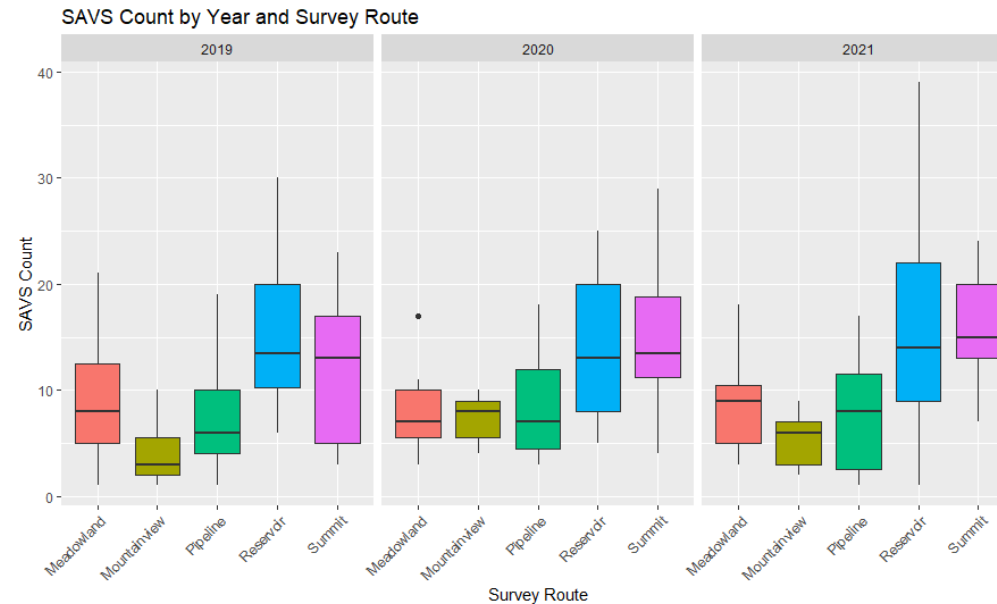
Savannah Sparrows 2022 (?)

- SAVS Response
 - Move to Plot B
 - Q – Is there enough suitable breeding habitat?
 - Move to other areas on Powell Butte (e.g., Plot C)
 - Leave Powell Butte entirely to breed elsewhere



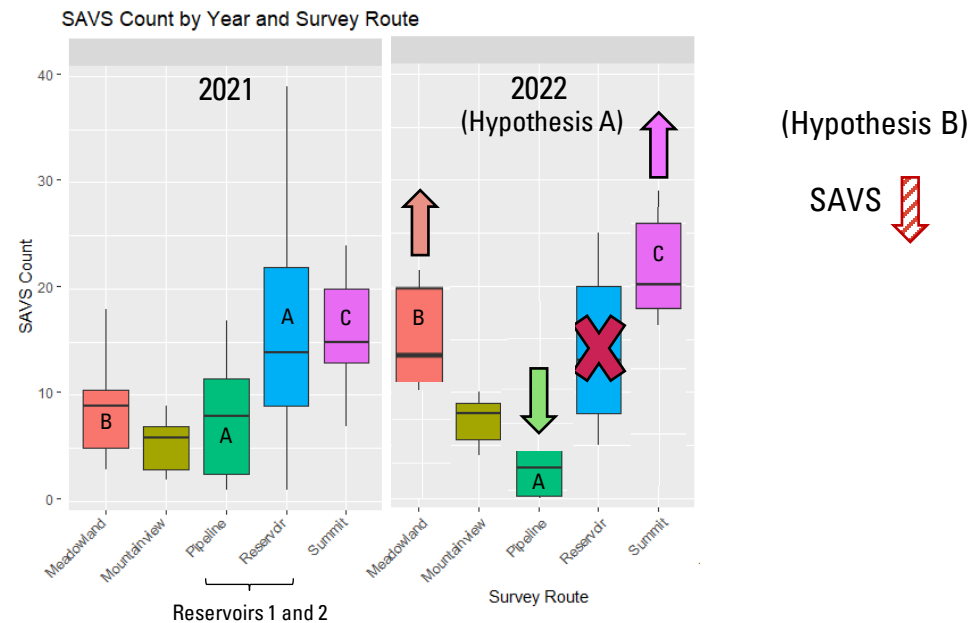
SAVS Counted on Community Science Surveys 2019-2021

- Boxplots showing average SAVS count per survey – first 3 years of study
 - Reported by year and survey route
 - Consistent results across years
- Q – What should we expect in 2022?



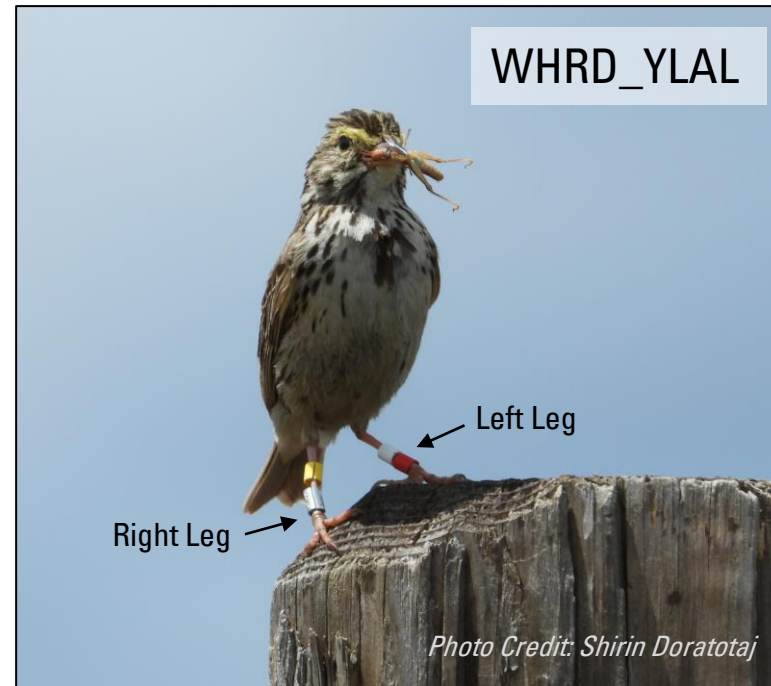
SAVS Counts 2022 (?)

- Hypothesis A
 - SAVS move to other areas on Powell Butte
 - SAVS counts should increase in some areas and decline in others
- Hypothesis B
 - SAVS from Reservoir 1 leave Powell Butte
 - Overall SAVS counts should decline



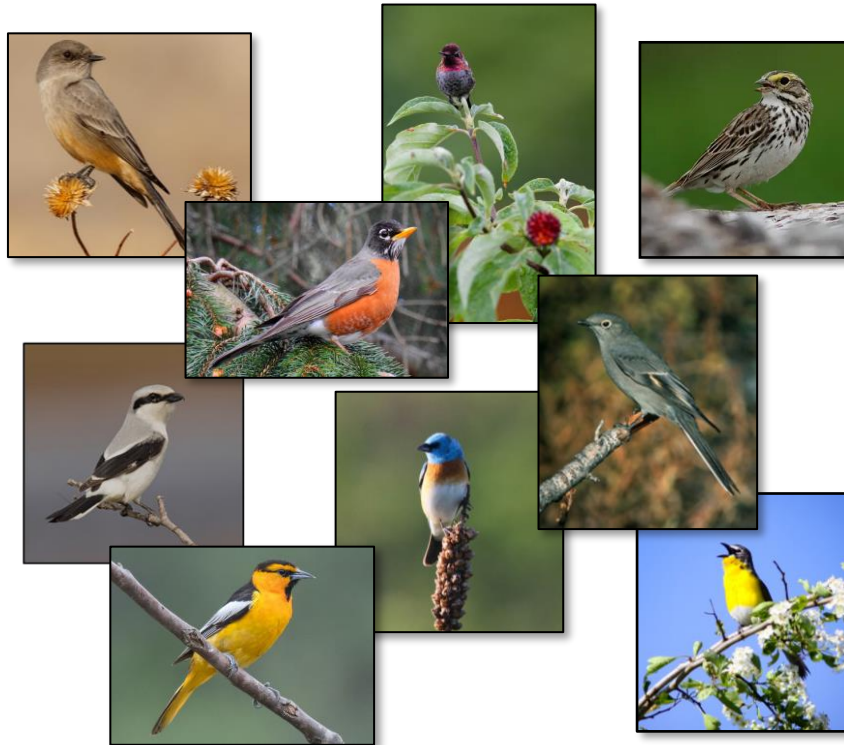
Tracking Individual Sparrows

- 101 previously color-banded SAVS
 - 20 color-banded adults on Reservoir 1
 - 36 nestlings color-banded in 2021
- Color-banding allows us to track the response of individual birds
 - Estimate survivorship
 - Measure lifetime fecundity
 - Monitor dispersal and habitat selection



Powell Butte Grassland Bird Surveys Results (2019-2021)

- Survey Effort
 - 33 Volunteers – **THANK YOU!**
 - 140 Hours of Surveys
 - 124 Miles of Trails Surveyed



Powell Butte Grassland Bird Surveys Results (2019-2021)

- Survey Data – by Year

	2019	2020	2021	Pooled
Species Detected	77	69	65	94
Birds Counted	4,221	2,491	2,951	9,663
# Surveys	92	58	65	215

For complete survey data visit:
www.conservationinsight.org

Species	AOU Code	2019	2020	2021	Pooled
American Crow	AMCR	137	45	42	224
American Goldfinch	AMGO	47	18	26	91
American Kestrel	AMKE	35	19	18	72
American Robin	AMRO	519	290	355	1,164
Anna's Hummingbird	ANHU	137	68	88	293
Bald Eagle	BAEA	2	3		5
Barn Swallow	BARS	170	107	88	365
Black-capped Chickadee	BCCH	79	23	68	170
Bewick's Wren	BEWR	15	8	16	39
Brown-headed Cowbird	BHCO	20	7	4	31
Black-headed Grosbeak	BHGR	32	6	17	55
Brewer's Blackbird	BRBL	4		1	5
Brown Creeper	BRCR	1	1		2
Band-tailed Pigeon	BTPI	28	5	4	37
Black-throated Gray Warbler	BTYW	9	3		12
Bullock's Oriole	BUOR	1			1
Bushtit	BUSH	10	8	1	19
Canada Goose	CAGO	8	2	2	12
California Scrub-Jay	CASJ	27	12	10	49
Chestnut-backed Chickadee	CBCH	24	8	7	39
Cedar Waxwing	CEDW	78	37	108	223
Cliff Swallow	CLSW	1		5	6
Cooper's Hawk	COHA	1	2	2	5
Common Yellowthroat	COYE	165	162	139	466
Double-crested Cormorant	DCCO		1		1
Dark-eyed Junco	DEJU	196	99	107	402
Downy Woodpecker	DOWO	5	2	6	13
Eurasian Collared-Dove	ECDD	3	1	13	17
European Starling	EUST	23	12	22	57
Fox Sparrow	FOSP		2		2
Great Blue Heron	GBHE			1	1
Golden-crowned Kinglet	GCKI	13	3		16
Golden-crowned Sparrow	GCSP	16	8	20	44
Great Horned Owl	GHOW	5			5
Great Egret	GREG			1	1
Hairy Woodpecker	HAWO	3			3
Hermit Thrush	HETH		2	5	7
House Finch	HOFI	41	3	53	97

Powell Butte Grassland Bird Surveys Results (2019-2021)

- Survey Data – by Route

	ML	MV	PL	RL	SL
Species Detected	64	61	64	67	64
Birds Counted	1,936	1,991	1,906	2,191	1,639
# Surveys	42	41	48	46	38

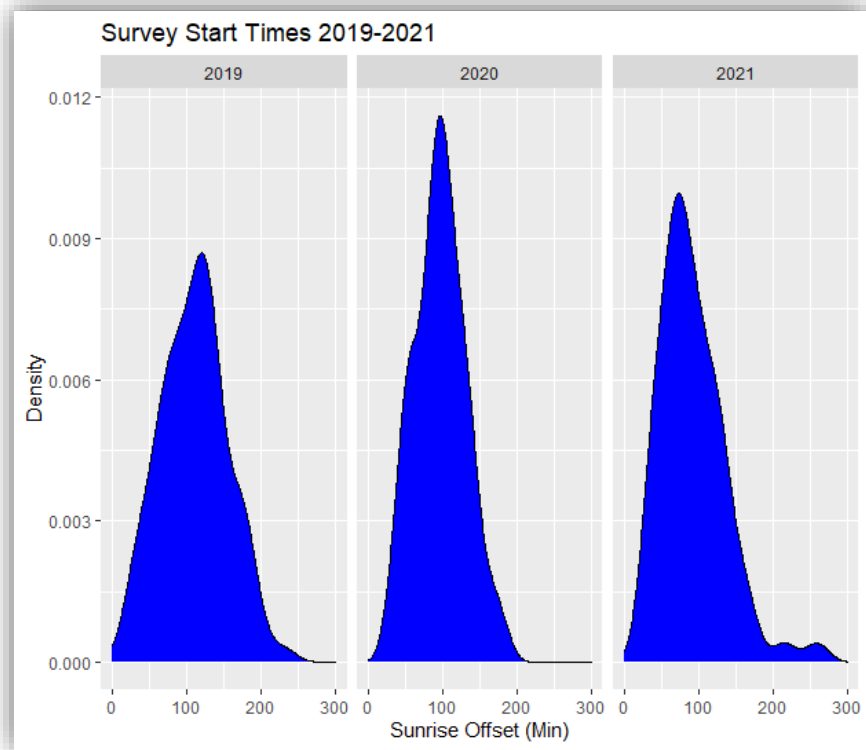
ML = Meadowland Lane
 MV = Mountain View Trail
 PL = Pipeline Lane

RL = Reservoir Lane
 SL = Summit Lane

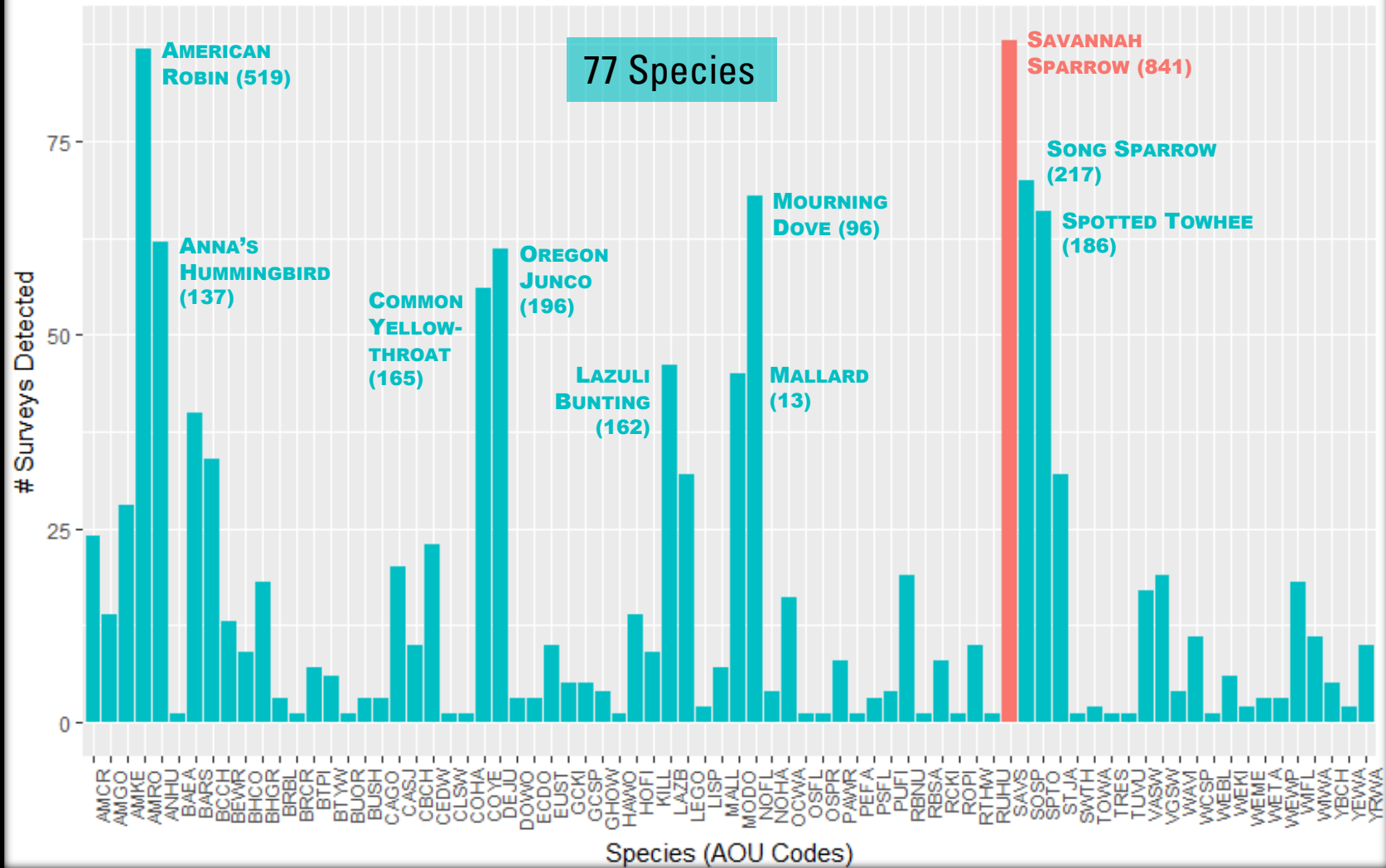
Species	AOU Code	Meadowland	Mountainview	Pipeline	Reservoir	Summit	Pooled
American Crow	AMCR	93	6	53	27	45	224
American Goldfinch	AMGO	8	35	6	36	6	91
American Kestrel	AMKE	7	8	19	11	27	72
American Robin	AMRO	230	265	248	221	200	1,164
Anna's Hummingbird	ANHU	72	103	55	37	26	293
Bald Eagle	BAEA			3	2		5
Barn Swallow	BARS	26	17	190	101	31	365
Black-capped Chickadee	BCCH	26	60	50	23	11	170
Bewick's Wren	BEWR	16	5	9	8	1	39
Brown-headed Cowbird	BHCO	19	6		4	2	31
Black-headed Grosbeak	BHGR	23	11	12	7	2	55
Brewer's Blackbird	BRBL			1	1	3	5
Brown Creeper	BRCR				2		2
Band-tailed Pigeon	BTP1	28	5	3	1		37
Black-throated Gray Warbler	BTYW	4	4	1	2	1	12
Bullock's Oriole	BUOR		1				1
Bushtit	BUSH		13	2	3	1	19
Canada Goose	CAGO		4		5	3	12
California Scrub-Jay	CASJ	20	3	13	5	8	49
Chestnut-backed Chickadee	CBCH	13	3	14	1	8	39
Cedar Waxwing	CEDW	57	87	29	35	15	223
Cliff Swallow	CLSW			5	1		6
Cooper's Hawk	COHA	1	1	1		2	5
Common Yellowthroat	COYE	113	120	40	61	132	466
Double-crested Cormorant	DCCO			1			1
Dark-eyed Junco	DEJU	60	73	89	145	35	402
Downy Woodpecker	DOWO	7	5		1		13
Eurasian Collared-Dove	ECDO	8	6	1		2	17
European Starling	EUST	1	14	29	4	9	57
Fox Sparrow	FOSP		1			1	2
Great Blue Heron	GBHE					1	1
Golden-crowned Kinglet	GCKI	5		5	3	3	16
Golden-crowned Sparrow	GCSP	5	5	7	14	13	44

Powell Butte Grassland Bird Surveys Results (2019-2021)

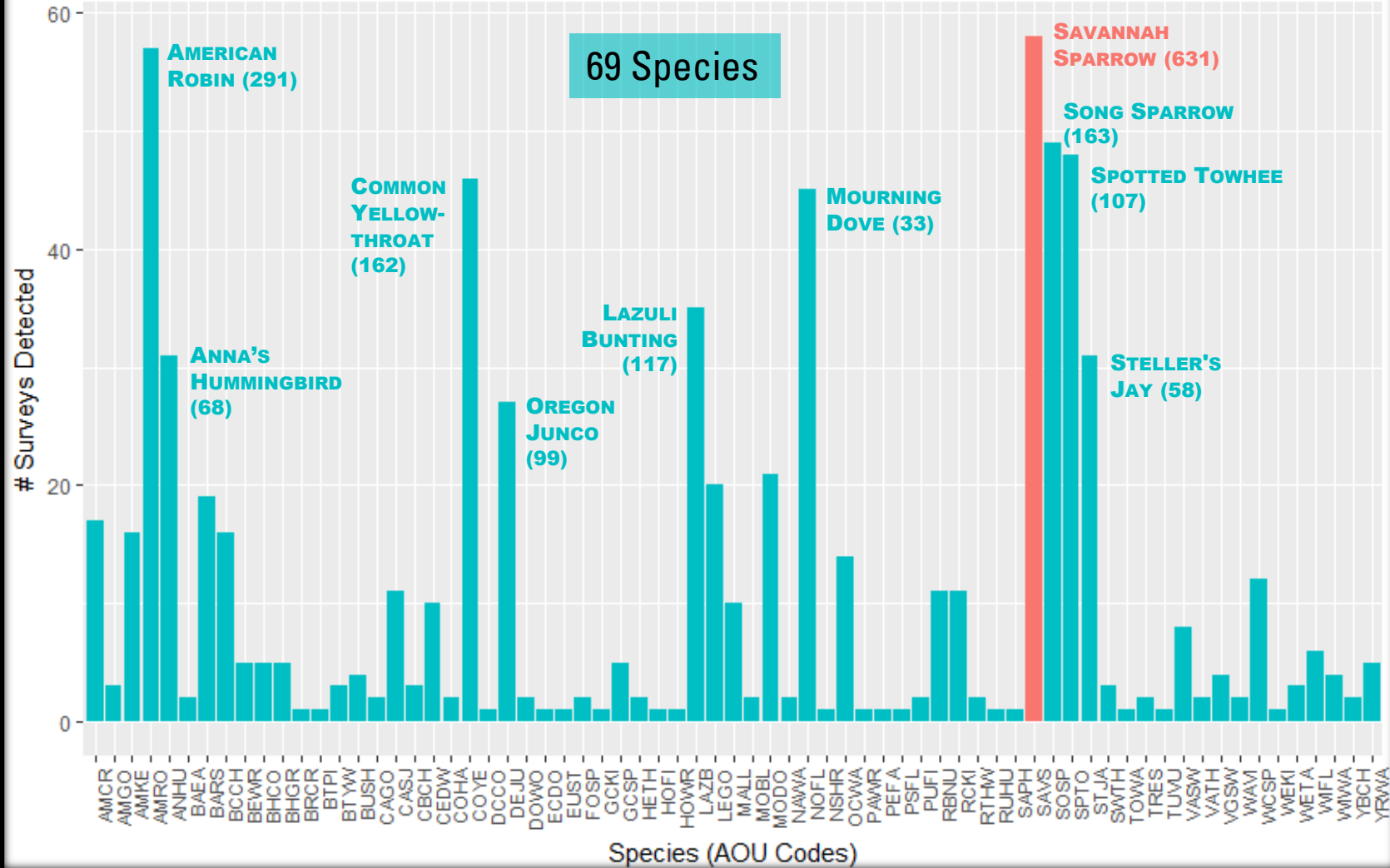
- Survey Start Times
 - Protocol
 - Complete surveys < 3 hrs after sunrise (start last survey < 2 hrs after sunrise)
 - Average start time
 - 105 min (1.75 hrs) post-sunrise



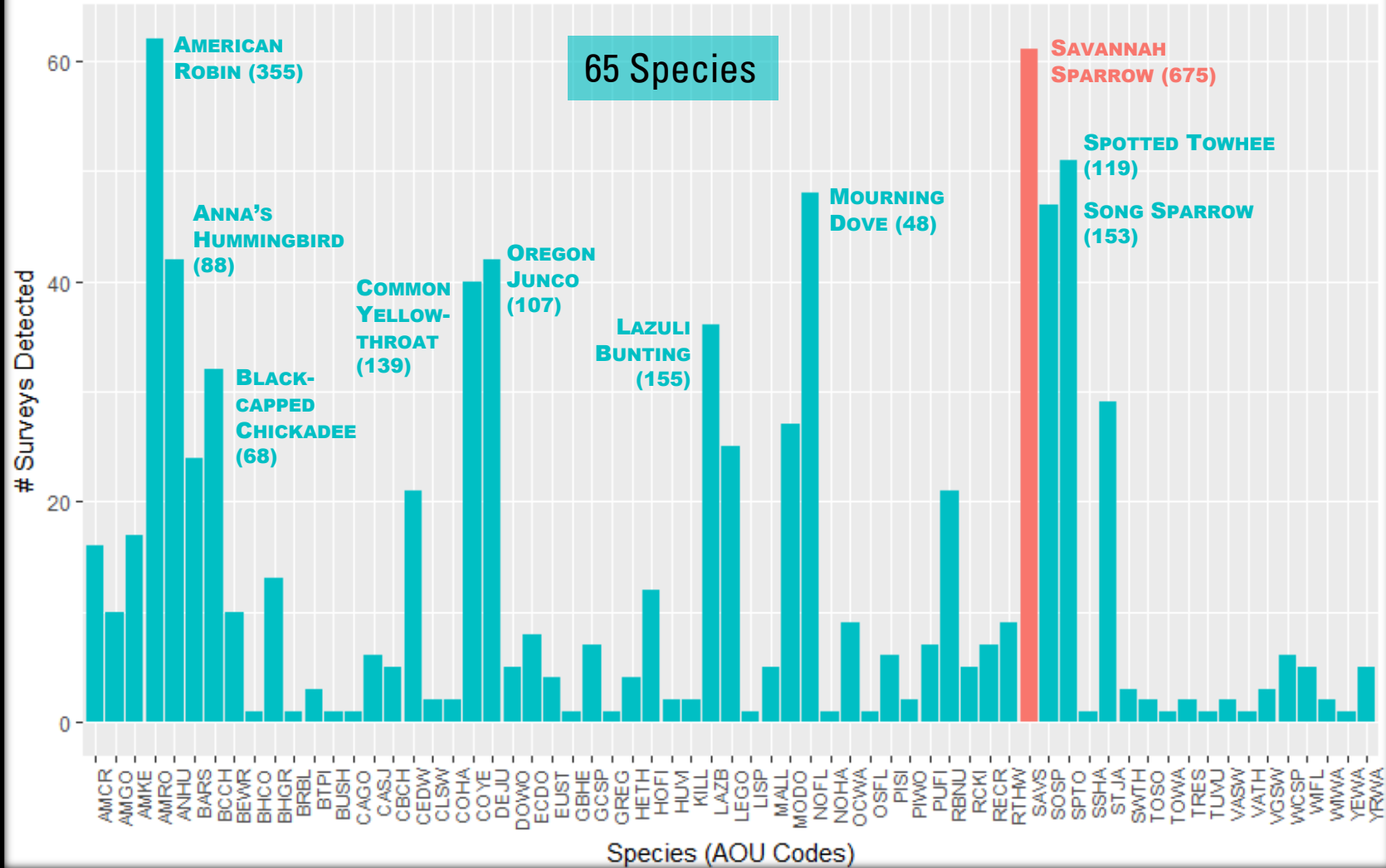
Species Observed 2019 (Counts)



Species Observed 2020 (Counts)



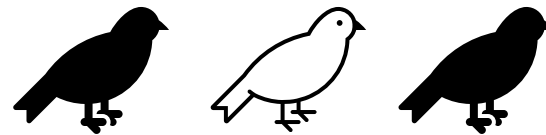
Species Observed 2021 (Counts)



Powell Butte Grassland Bird Surveys 2022 (Year 4)

- Surveys planned again for 2022
 - Data from these surveys will really help us understand the impact of the ongoing construction project on bird populations at Powell Butte Nature Park
- Watch for announcements about signups and trainings

**We need
your help!**



Please visit our website to make a donation:
www.conservationinsight.org

Acknowledgements



- **Our Volunteers!**

- Gayle and Jeff Faust
- Biz Miller
- Daniel Newberry
- Christian Haaning
- Susan Hawes
- Kevin Duff
- Angie Kimpo

