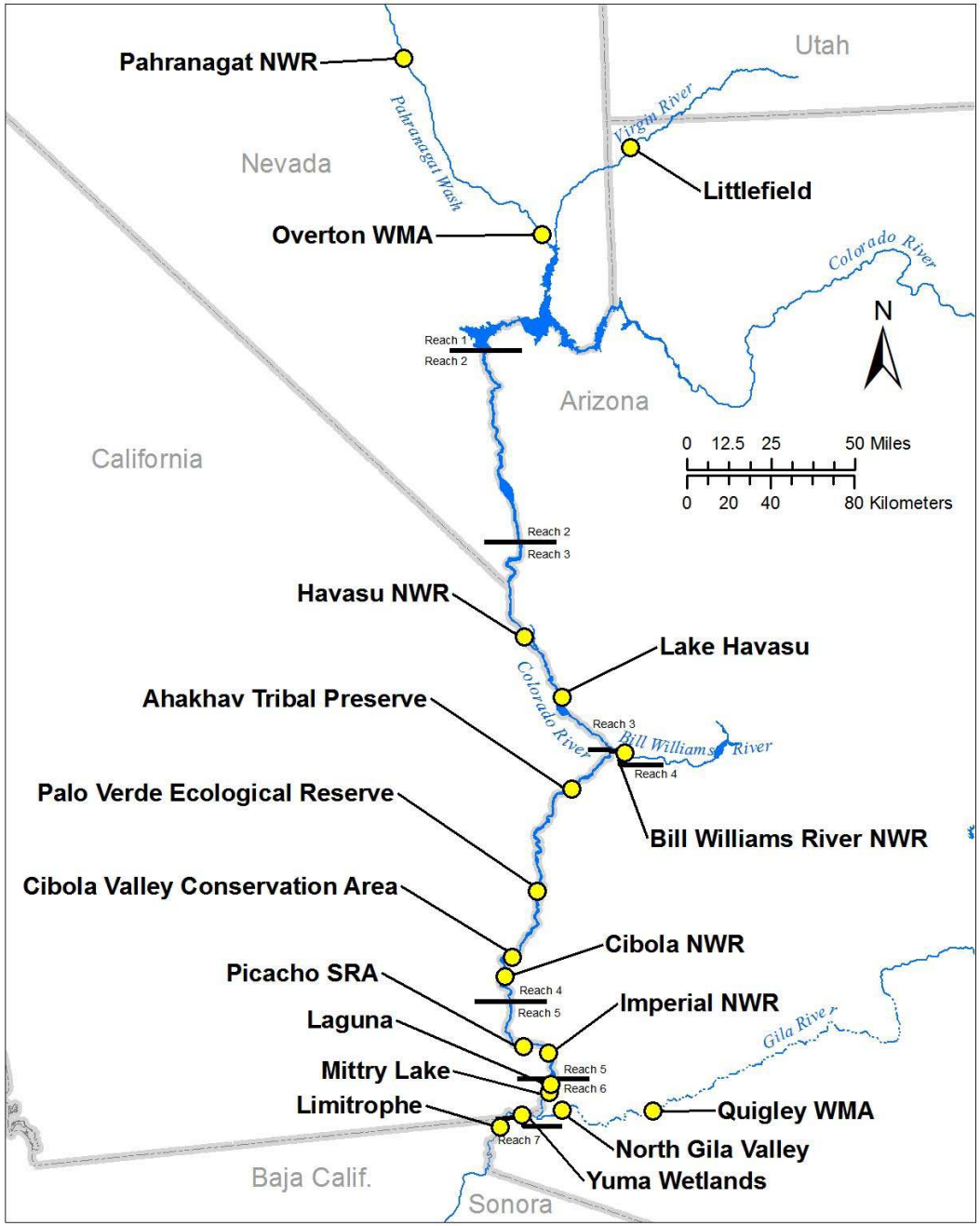
Lower Colorado River Western Yellow-Billed Cuckoo Presence Absence Survey Results

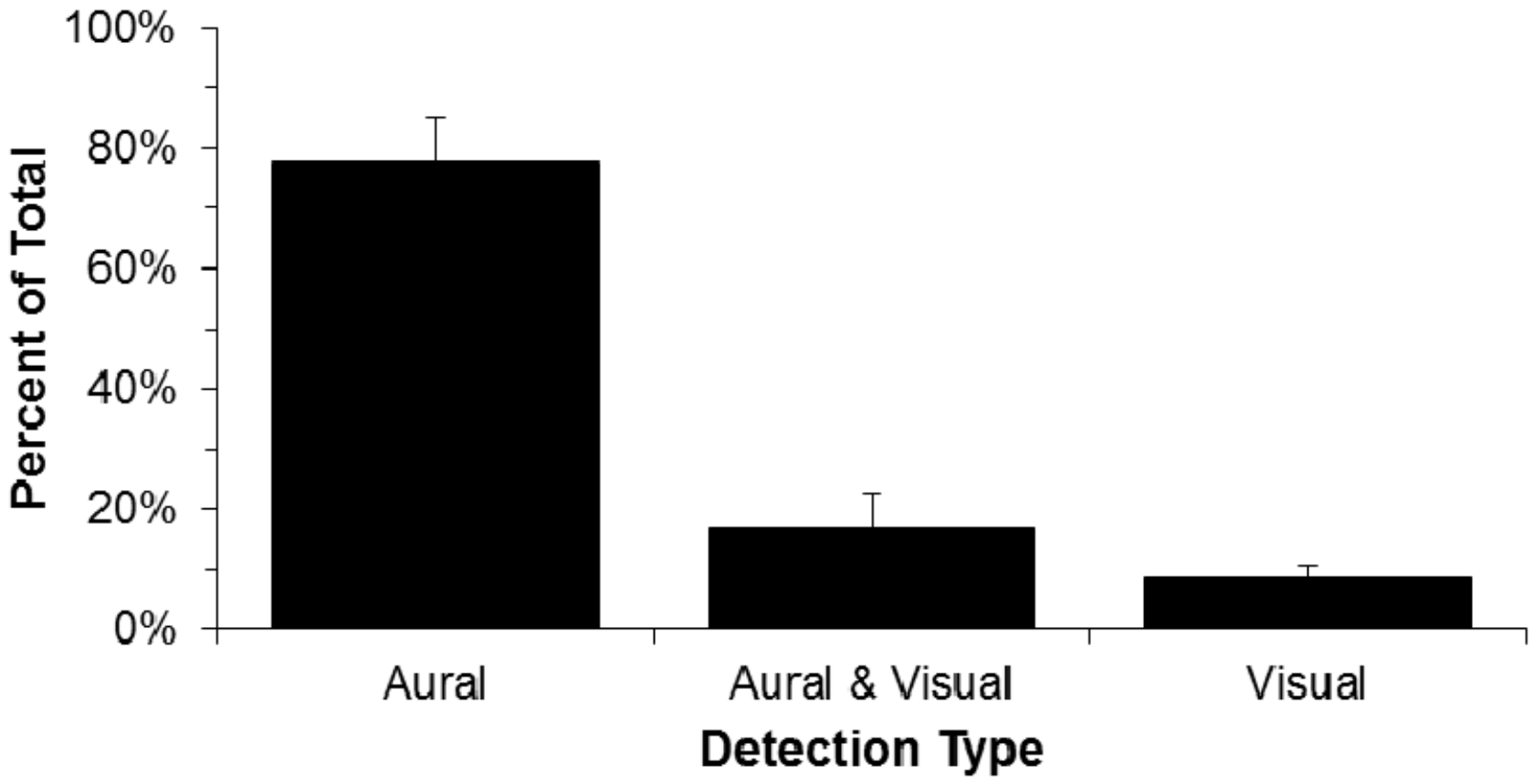
Southern Sierra Research Station


Pahranagat NWR
Utah
Pahranagat Wash
Virgin River
Nevada
Littlefield
Overton WMA
Colorado River
N
Reach 1
Reach 2
Arizona
California
0 12.5 25 50 Miles
0 20 40 80 Kilometers
Reach 2
Reach 3
Havasu NWR
Lake Havasu
Colorado River
Ahakhav Tribal Preserve
Reach 3
Bill Williams River
Reach 4
Palo Verde Ecological Reserve
Bill Williams River NWR
Cibola Valley Conservation Area
Cibola NWR
Picacho SRA
Reach 4
Reach 5
Imperial NWR
Laguna
Gila River
Mittry Lake
Reach 5
Reach 6
Limitrophe
Quigley WMA
Reach 7
North Gila Valley
Yuma Wetlands
Baja Calif.
Sonora

Survey Dates

Survey Period	Dates	Median Date
1	June 15 to June 30	June 22
2	July 1 to July 15	July 8
3	July 16 to July 31	July 23
4	Aug 1 to Aug 15	August 8
5	Aug 16 to Aug 31	August 23

Detection Type



Survey Detections

Year	Number of sites surveyed	Survey Period 1 (June) Detections	Survey Detection Total
2008	41	45	150
2009	62	29	178
2010	50	67	268
2011	51	22	220
2012	48	41	239

Occupancy Analysis

Used program PRESENCE to estimate

Habitat Occupancy

Habitat Colonization

Habitat Extinction

Occupancy Growth Rate

Detection Probability

MSCP Restoration Habitat 2008-2012

Survey Detections: 24 to 129

Detections Frequency: 2.3 / 5

Habitat Occupancy: 84% to 99%

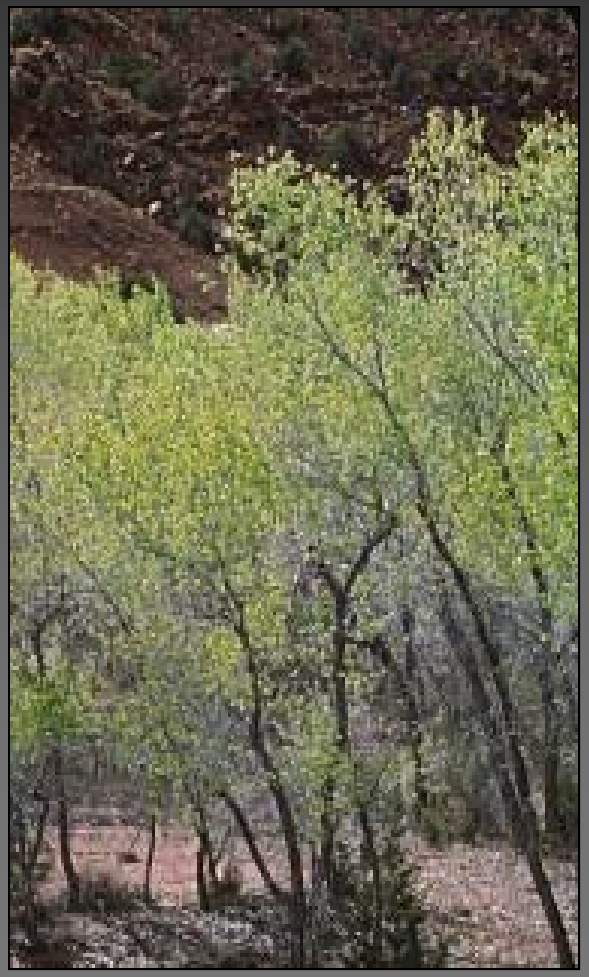
Habitat Colonization: 60% annual

Habitat Extinction: 0

Occupancy Growth Rate:
positive, but declining 1.12 to 1.01

Non-MSCP Restoration Habitat 2008-2012

Survey Detections:	20 to 43
Detections Frequency:	1.1 / 5
Habitat Occupancy:	100% annual
Habitat Colonization:	88% annual
Habitat Extinction:	12% annual
Occupancy Growth Rate:	1



BWR Natural Habitat 2008-2012

Survey Detections:	142 to 76
Detections Frequency:	1.8 / 5
Habitat Occupancy:	95% to 85%
Habitat Colonization:	0% annual
Habitat Extinction:	3% annual
Occupancy Growth Rate:	0.93

Non-BWR Natural Habitat 2008-2012

Survey Detections: 3 to 8

Detections Frequency: 0.4 / 5

Habitat Occupancy: 54%

Habitat Colonization: 13% annual

Habitat Extinction: 11% annual

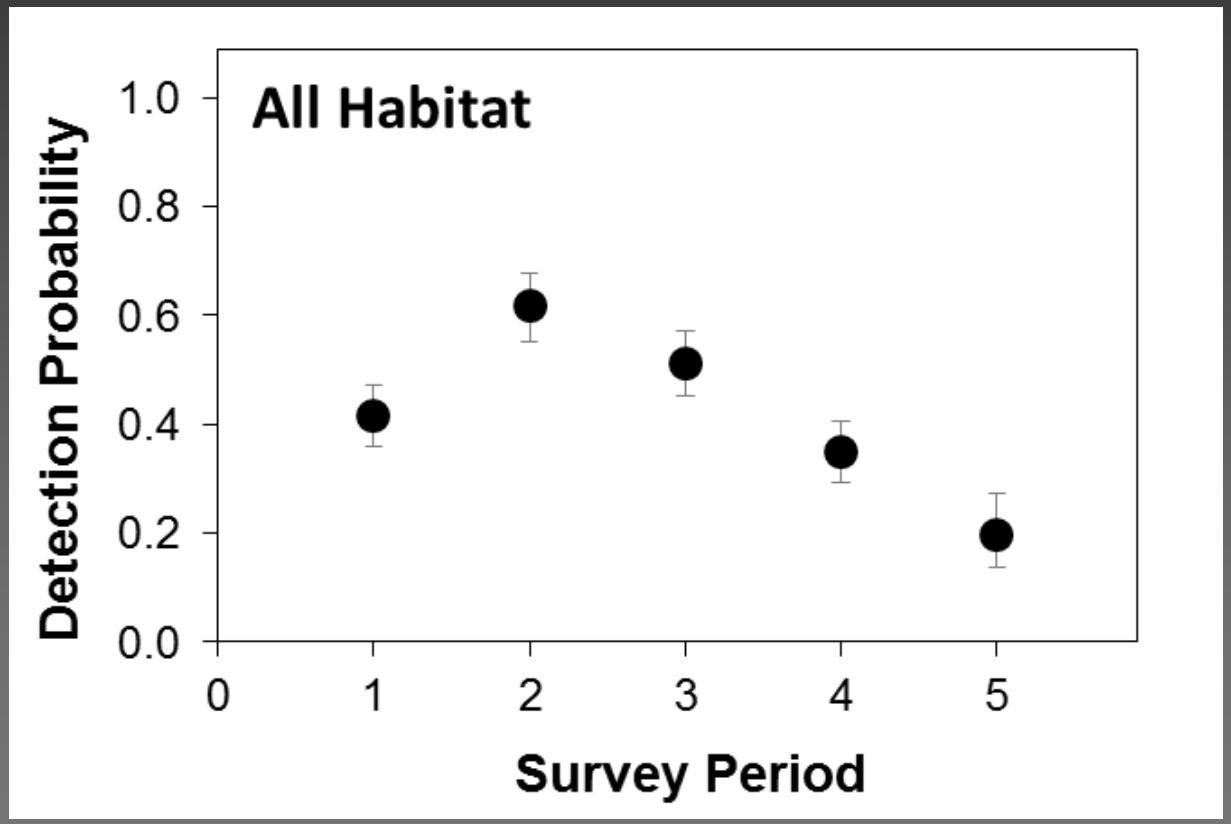
Occupancy Growth Rate: 1

Cuckoo Detection Probability

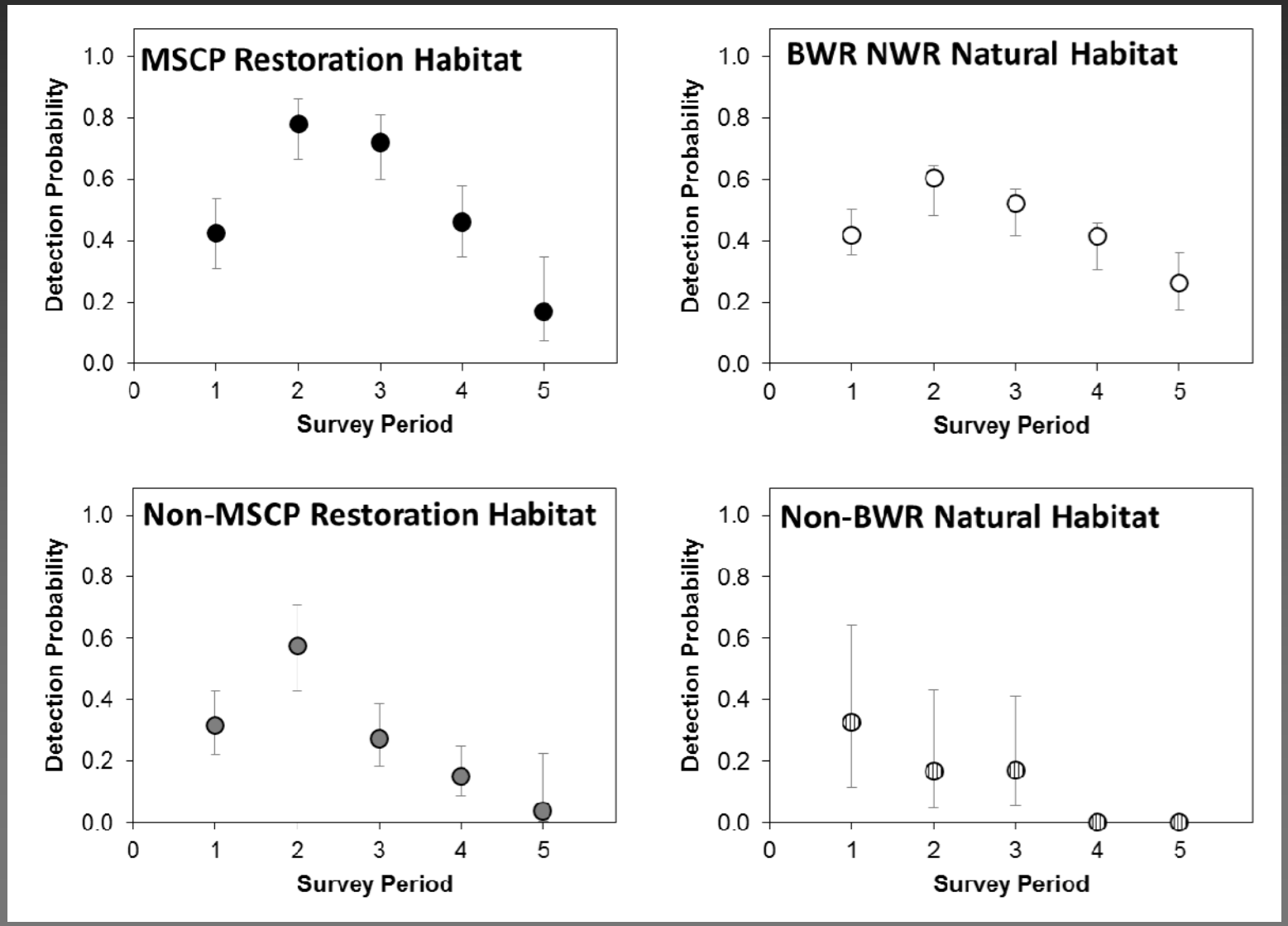
The probability that the species was present

The probability that a species was detected, given that it was present

Cuckoo Detection Probability



Detection Probabilities



Detection Probability at Nesting Habitat

Cuckoo Movement

Cuckoo Density

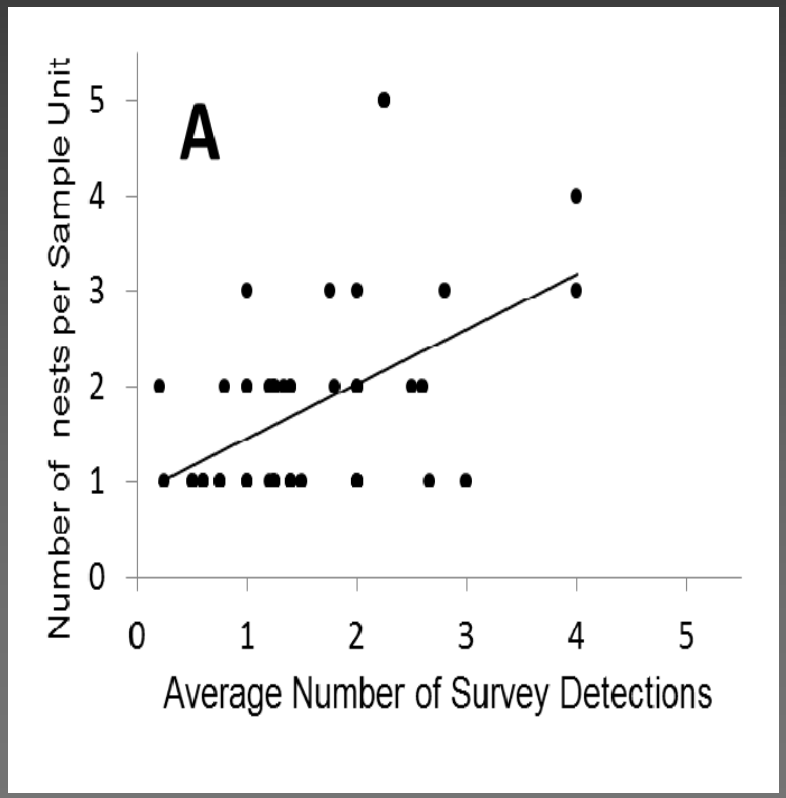
Nest Stage

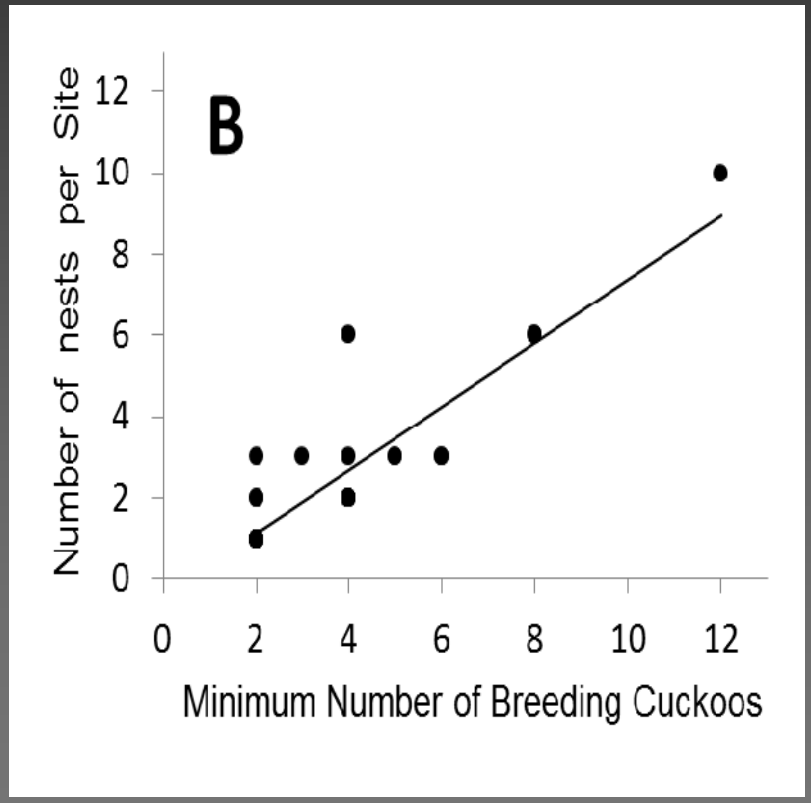
Breeding Phenology

Survey Detection Frequency in Nesting Habitat

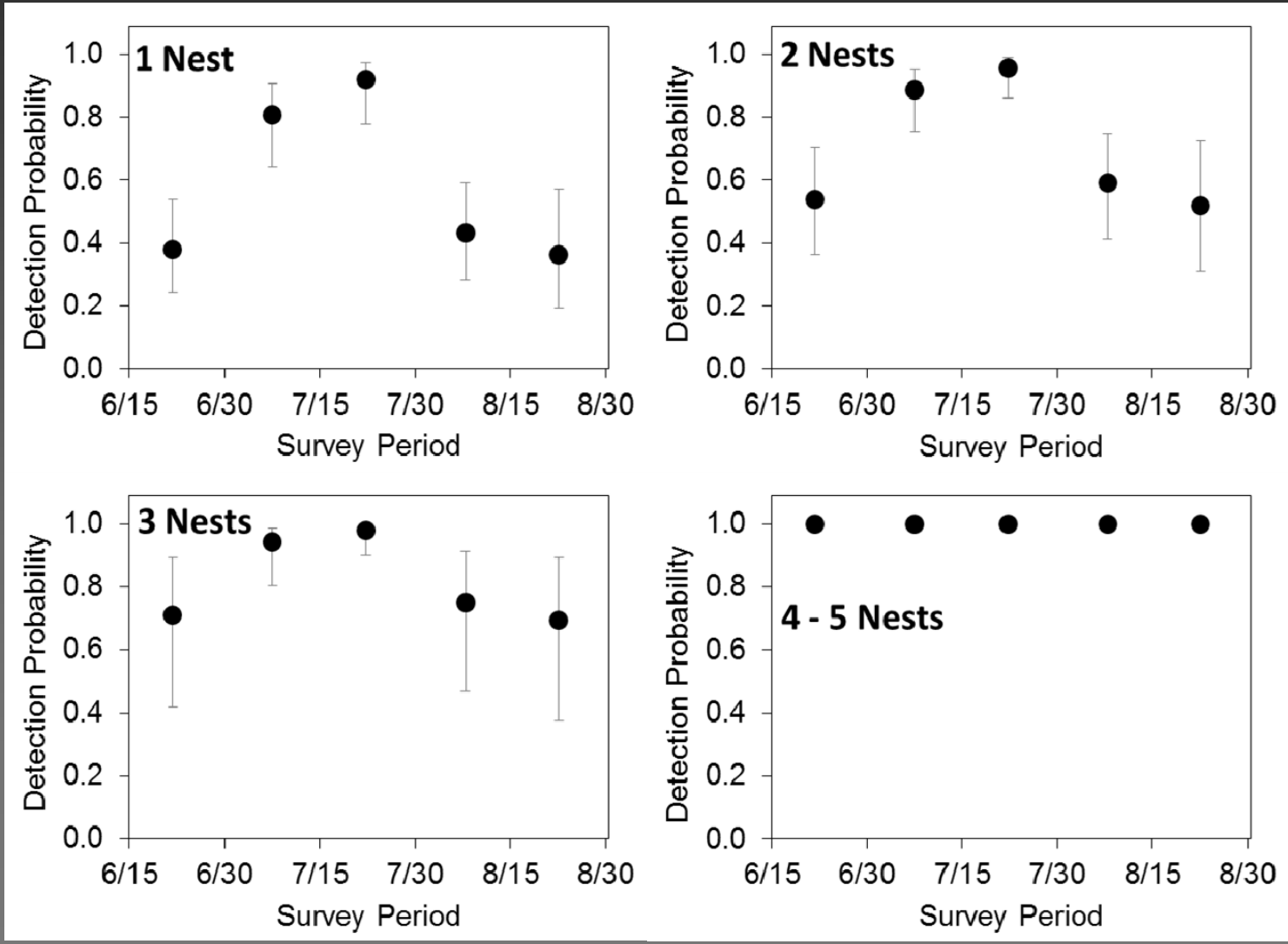
Number of Nests in Habitat	Average Number of Survey Visits with Detections
1 Nest	2.7
2 Nests	3.2
3 Nests	3.8
4 Nests	4
5 Nests	5

Nest Abundance and Cuckoo Abundance

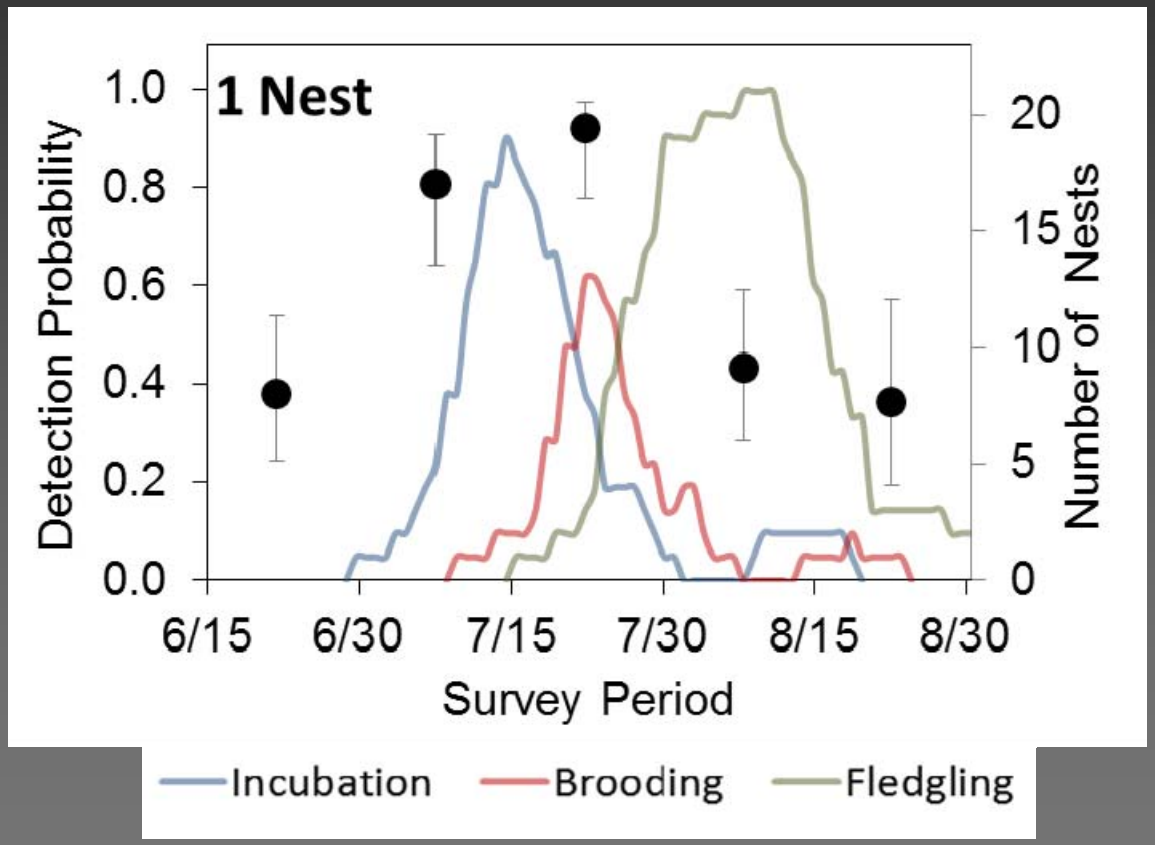




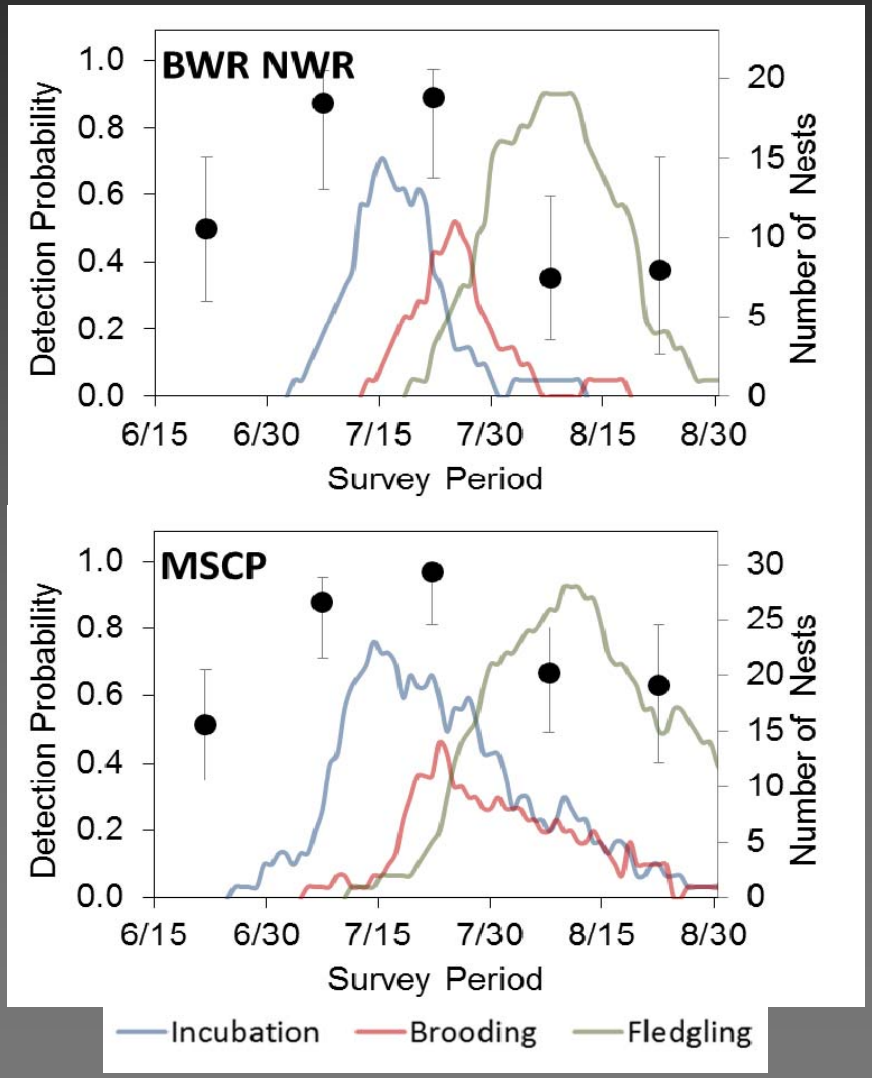
Detection Probability and Cuckoo Abundance



Detection Probability and Cuckoo Breeding Stage



Detection Probability and Breeding Phenology

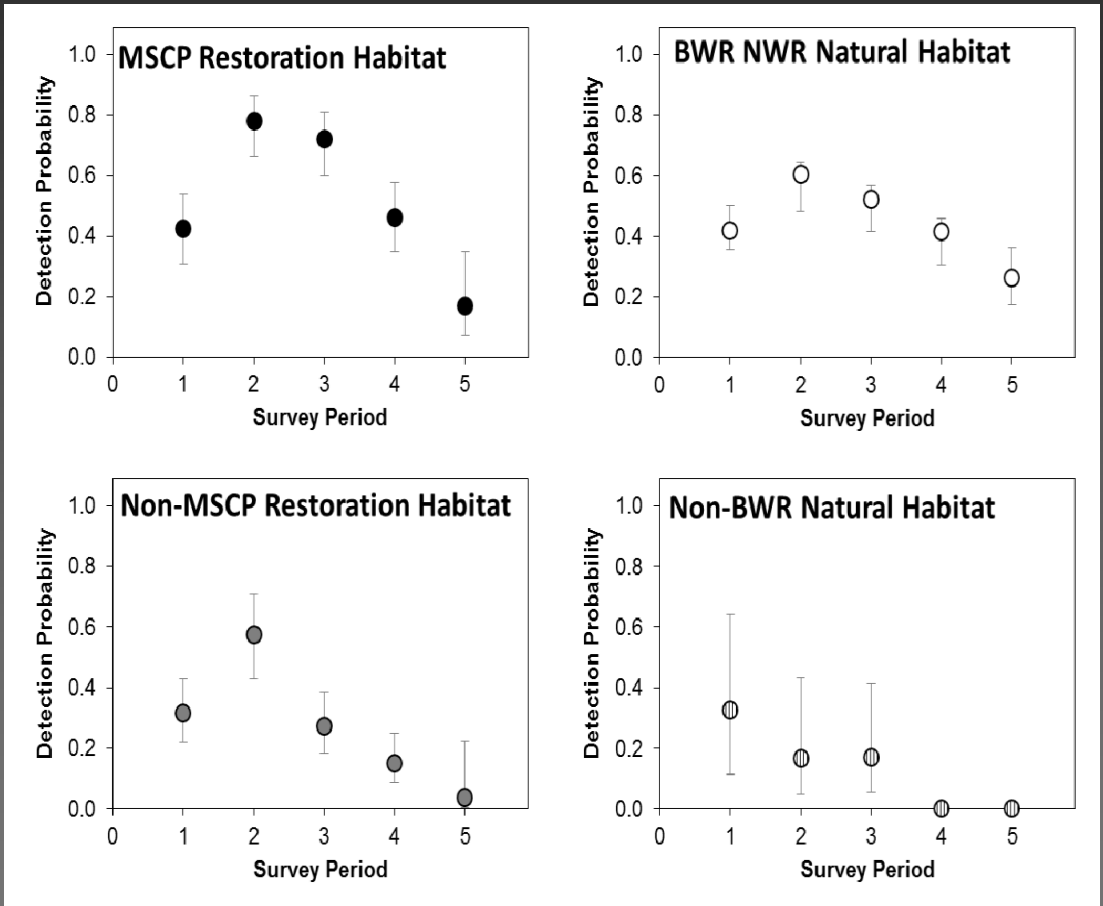


Detection Probability Variation

Cuckoo Movement

Average Estimate

Detection of non-breeding birds



Summary

↑ **Detections (Cuckoos) at MSCP Habitat**

↓ **Detections (Cuckoos) at BWR Habitat**

Summary

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non-MSCP Restoration habitat - Some Stop-over and possible breeding habitat use

non-BWR natural Habitat - Little used stop-over habitat

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Nesting habitat had detections on 3 out 5 survey visits

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non-BWR natural Habitat - Little used stop-over habitat

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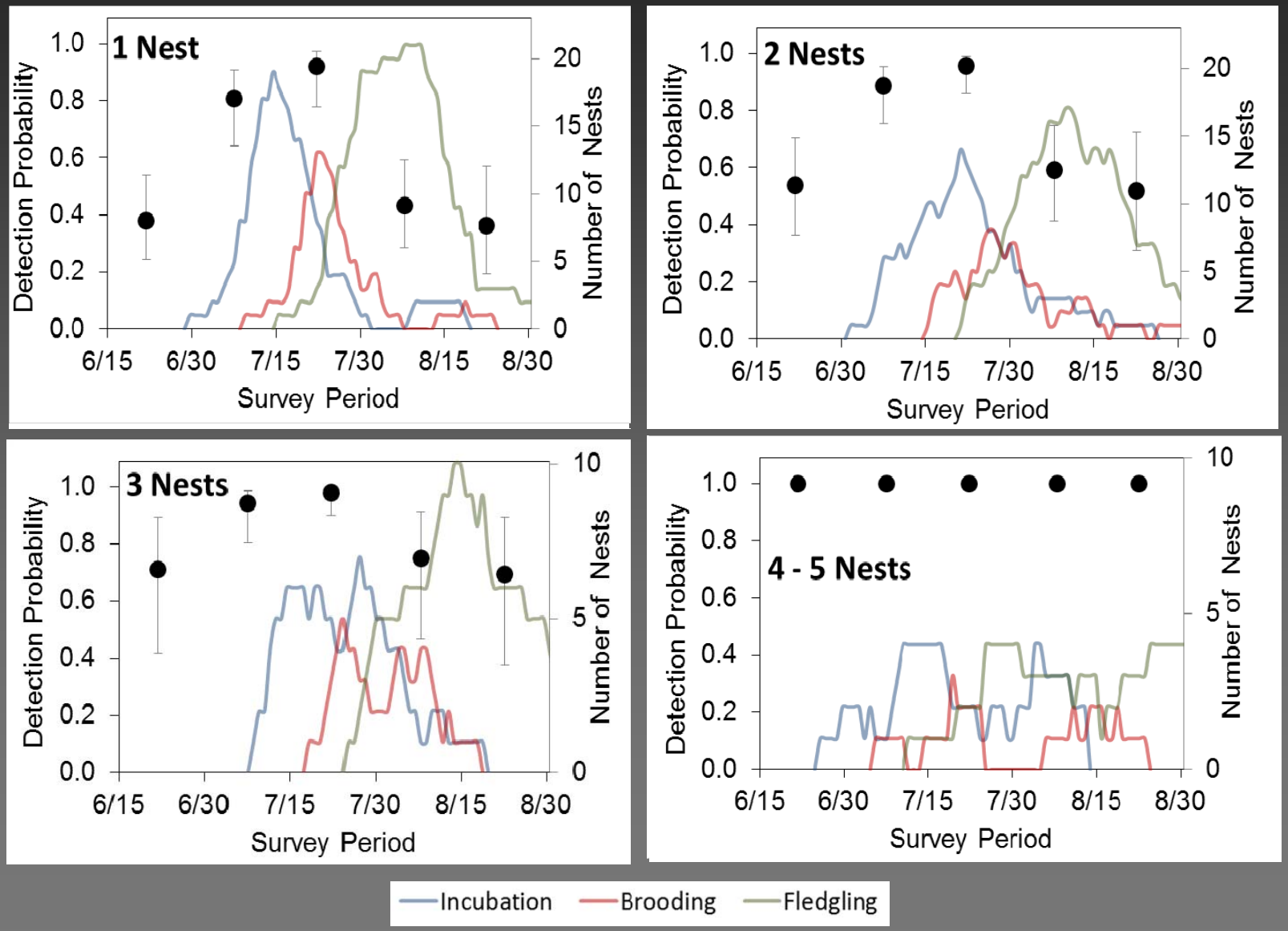
Probability to detect cuckoos is affected by :
Cuckoo Abundance, Breeding Stage, Breeding Phenology

Questions?

Detection Probabilities