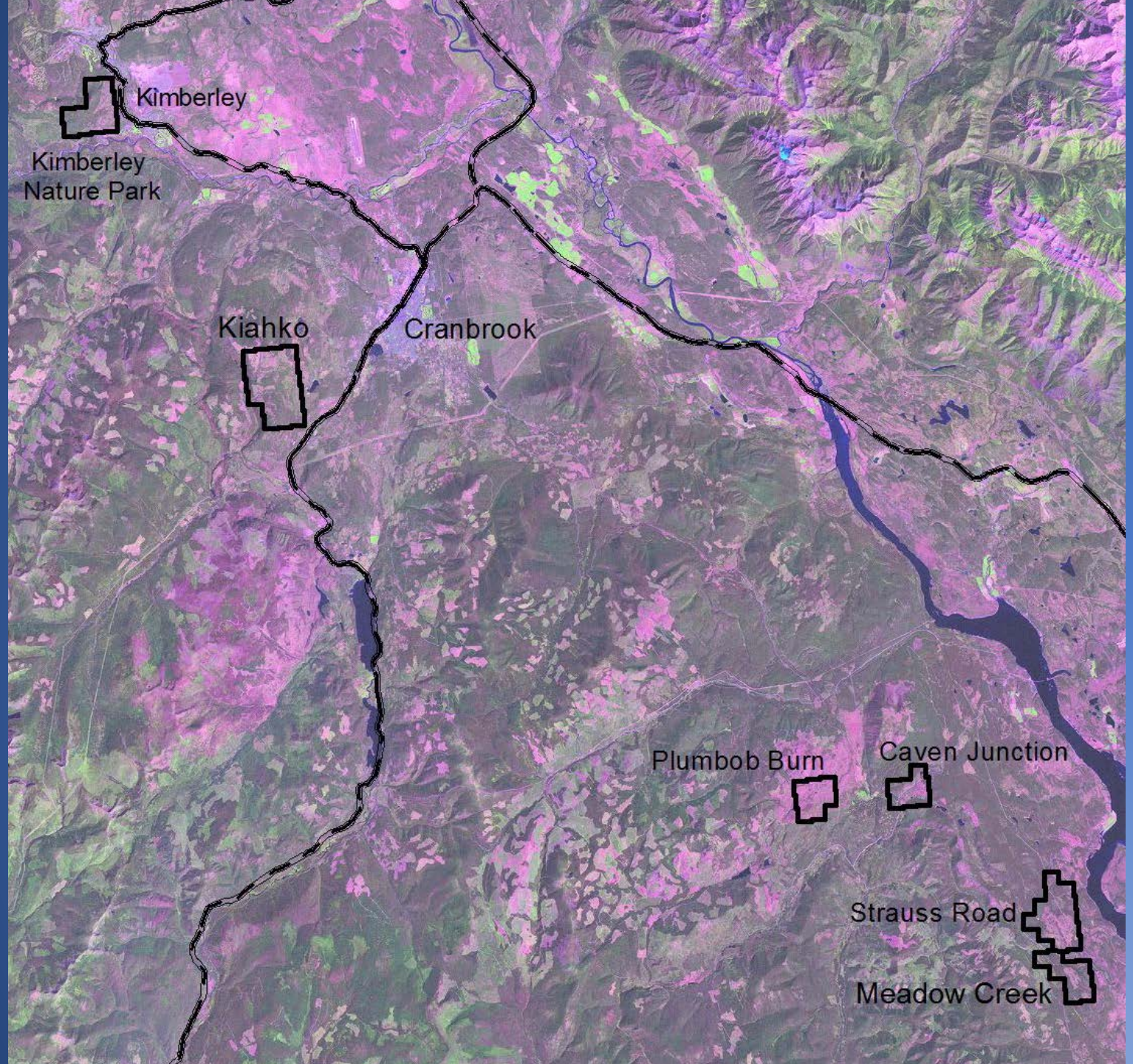
# Williamson's Sapsucker Relative Abundance Monitoring East Kootenay

2014, 2017, 2018




Sampling 6 areas covers 50% of known nesting territories in EK

Sampled using 800-m spacing on CPB points

Takes ~4-5 days in late April or early May

| | CPB Points | WISA Detected | |
|---|---|---|---|
| | | 2017 | 2018 |
| Caven Junction | 7 | 3 | 6 |
| Kiahko Creek | 22 | 10 | 11 |
| Kimberley Nature Park | 12 | 0 | 0 |
| Meadow Creek | 9 | 0 | 2 |
| Plumbob Burn | 8 | 5 | 10 |
| Strauss Road | 15 | 4 | 4 |
| Total | 73 | 22 | 33 |

| | CPB Points | WISA Detected | WISA Detected/ CPB | Std. Dev. | CV (SD/Mean) |
|---|---|---|---|---|---|
| **2014** | 46 | 12 | 0.26 | | |
| **2017** | 73 | 22 | 0.30 | | |
| **2018** | 73 | 33 | 0.45 | | |
| **Mean** | | | 0.34 | 0.10 | 30% |

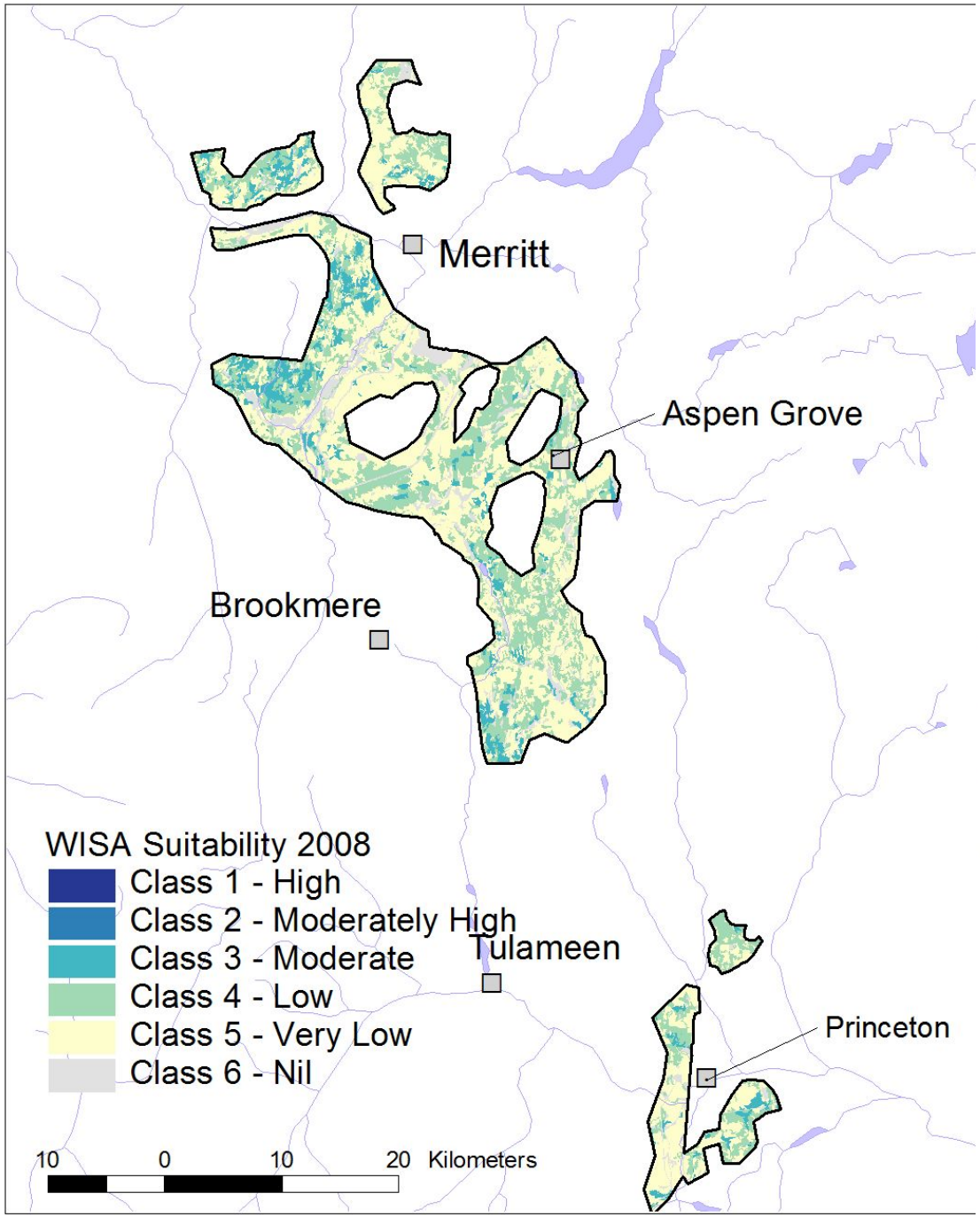
# WISA Habitat Modeling and Mapping Updated 2018

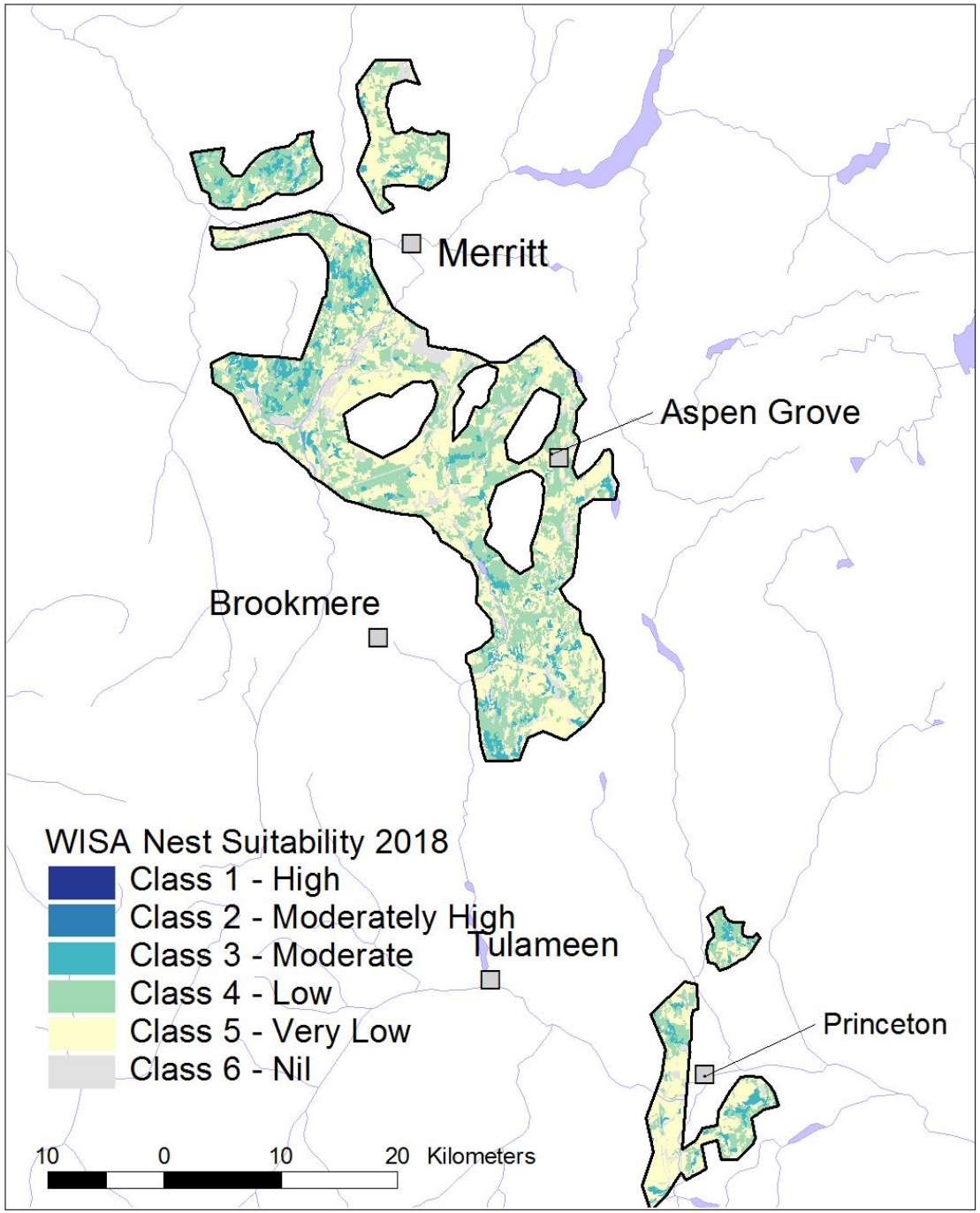
Critical Habitat in the Recovery Strategy was based on Habitat modeling and mapping in 2009-2010 using 2008 basemaps.

Intent was to update to March 2018, and incorporate foraging requirements into nesting model for West, Okanagan and Boundary (but not including TFL8 block north of Midway).

Nesting Model (CH) included sites with possible nest trees (e.g. Seedtree Cuts) that were not necessarily suitable for foraging.

Foraging requirements model remains to be incorporated.


Merritt
Aspen Grove
Brookmere
Tulameen
Princeton
WISA Suitability 2008
Class 1 - High
Class 2 - Moderately High
Class 3 - Moderate
Class 4 - Low
Class 5 - Very Low
Class 6 - Nil
10 0 10 20 Kilometers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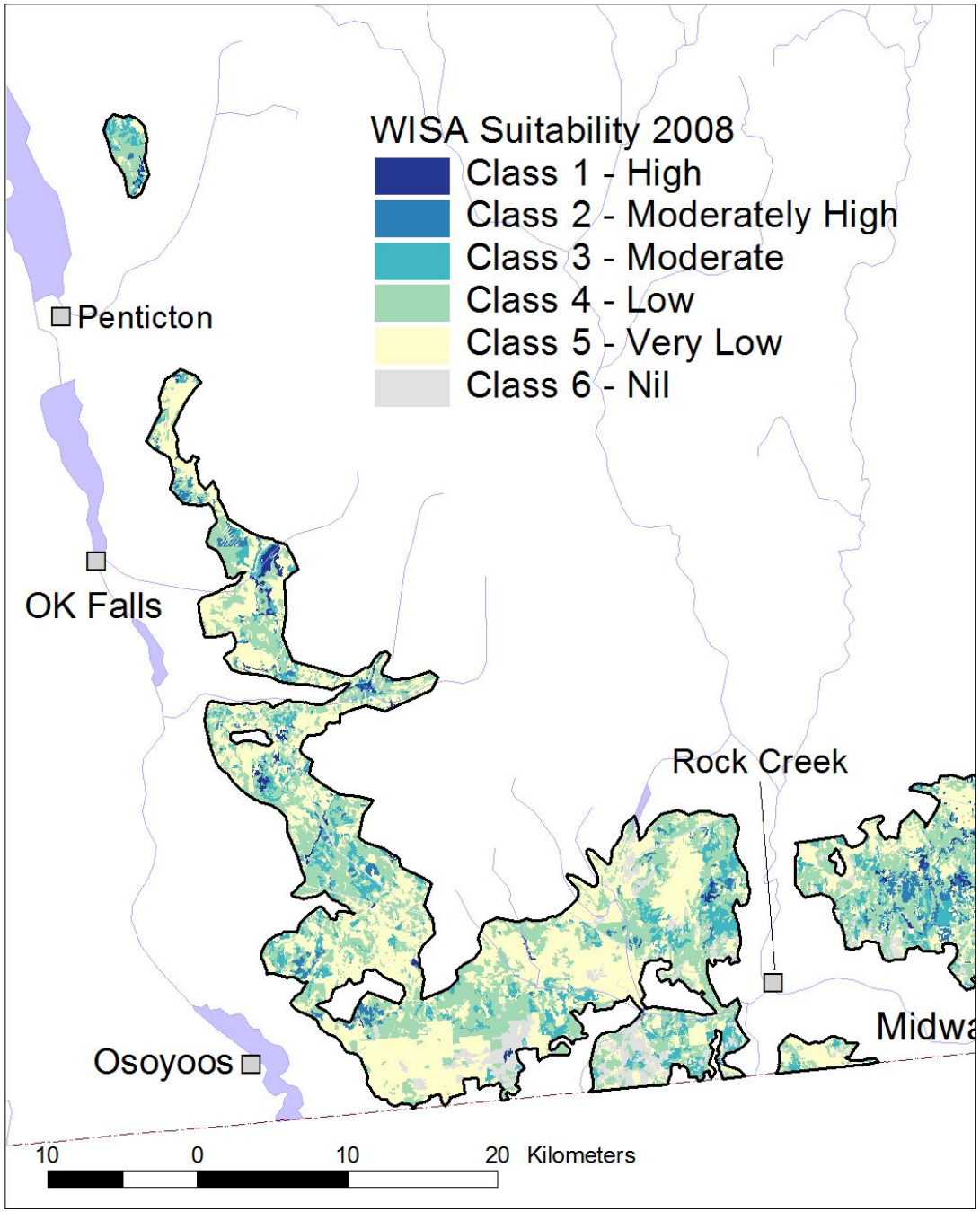
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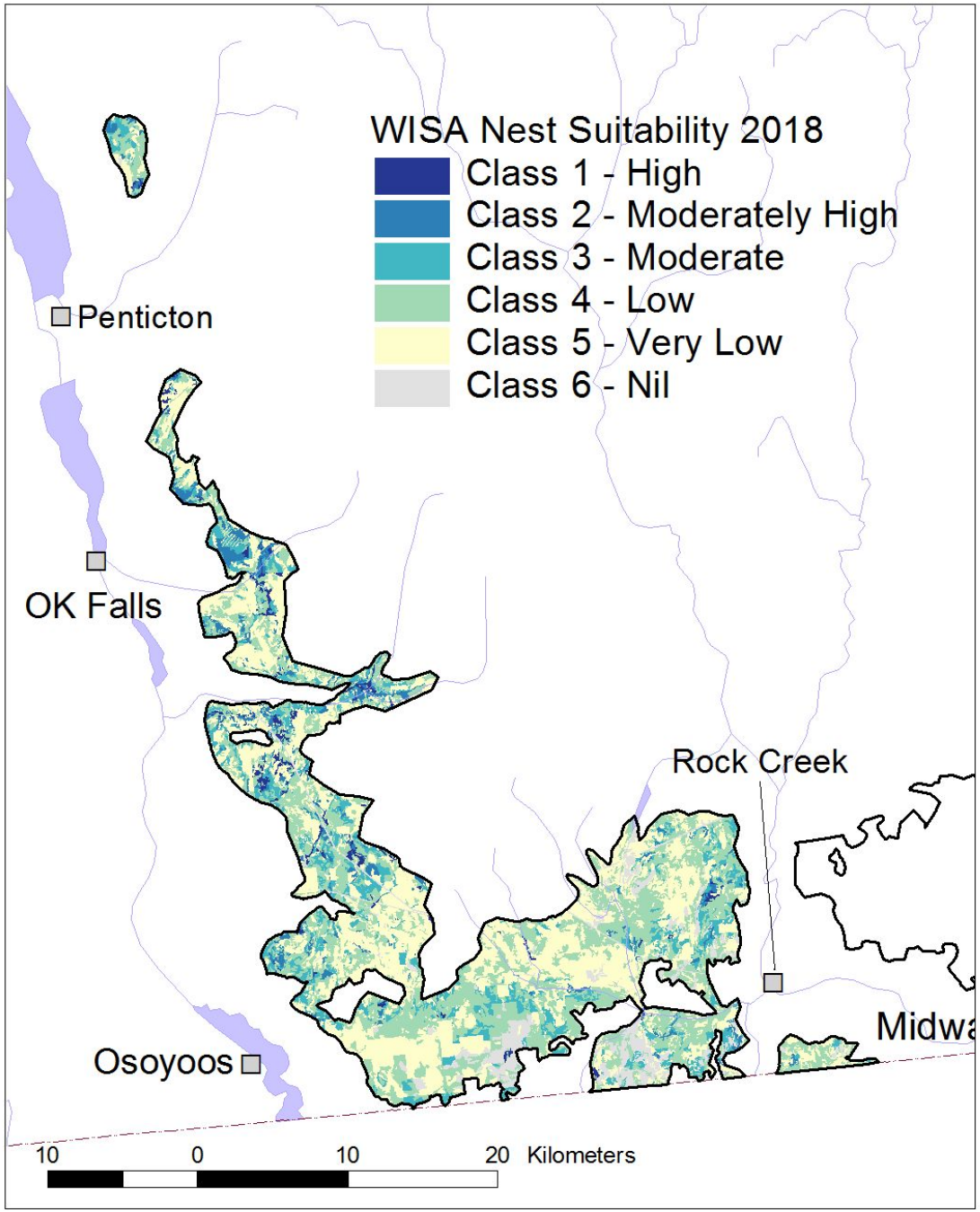
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# Nest Habitat Model Differences 2008 to 2018 - West

| Suitability Class 2008 | Suitability Class 2018 ($km^2$) | | | | |
|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | Total |
| **3 (M)** | 39 | 22 | 2 | 0 | **63** |
| **4 (L)** | 13 | 194 | 19 | 0.1 | **226** |
| **5 (VL)** | 9 | 57 | 315 | 0.3 | **381** |
| **6 (Nil)** | 0 | 0.1 | 0.2 | 72 | **72** |
| **Total** | **60** | **273** | **337** | **72** | **742** |

# Nest Habitat Model Differences 2008 to 2018 – Okan-Bdy

| Suitability Class 2008 | Suitability Class 2018 | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | Total |
| 1 (H) | 5 | 1 | 0.3 | 0.3 | 0.6 | 0 | 7 |
| 2 (MH) | 0.6 | 6 | 2 | 3 | 1 | 0 | 12 |
| 3 (M) | 3 | 8 | 25 | 11 | 3 | 0 | 50 |
| 4 (L) | 0.4 | 7 | 28 | 107 | 35 | 0.5 | 177 |
| 5 (VL) | 0.4 | 2 | 6 | 59 | 172 | 2 | 240 |
| 6 (Nil) | 0.1 | 0.1 | 0 | 0.5 | 1 | 34 | 36 |
| Total | 9 | 24 | 60 | 181 | 211 | 37 | 521 |

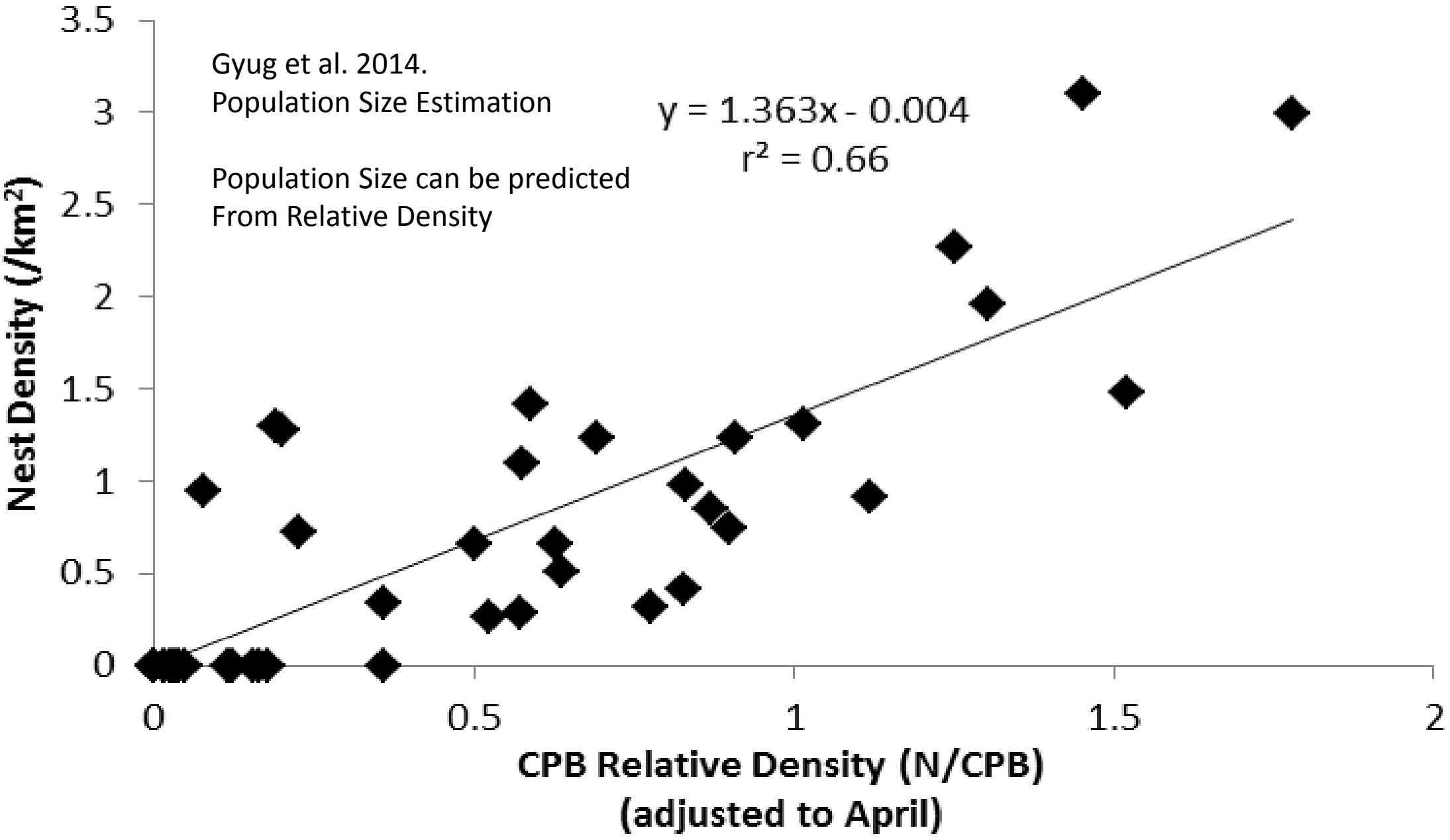
# Conclusions:

Apparent gains in suitable habitat may not be real because distance to assumed foraging habitat was included as a partial adjustment in 2008 modeling,

But distance to suitable foraging habitat has not yet been "re-included" in the 2018 modeling until a spatial foraging model is available based on radio-telemetry data.

TFL 8 block north of Midway remains to be updated.

# Williamson’s Sapsucker Population Estimation


Gyug et al. 2014.
Population Size Estimation
Population Size can be predicted
From Relative Density
y = 1.363x - 0.004
r² = 0.66
Nest Density (/km²)
3.5
3
2.5
2
1.5
1
0.5
0
0
0.5
1
1.5
2
CPB Relative Density (N/CPB)
(adjusted to April)

# Global Population Estimate?

Method:  Breeding Bird Survey (BBS)

>4000 roadside routes

3 min. silent listening at each of 50 stops ½ mile apart

Blancher et al. 2004, 2013

Density = # Detections/stop x detection radius

x time of day correction x pair correction

Density x Area = Population Est.

WISA found on 212 BBS routes (only 1 in BC)

of 600+ routes in breeding range

Density = # Detections/stop x

x 125 m detection radius

x 1.2 (time of day correction)

X 2 (pair correction) (Blancher et al.)

WISA Global Pop Est. ~ 300,000 WISA

Blancher et al. method has been widely panned because:

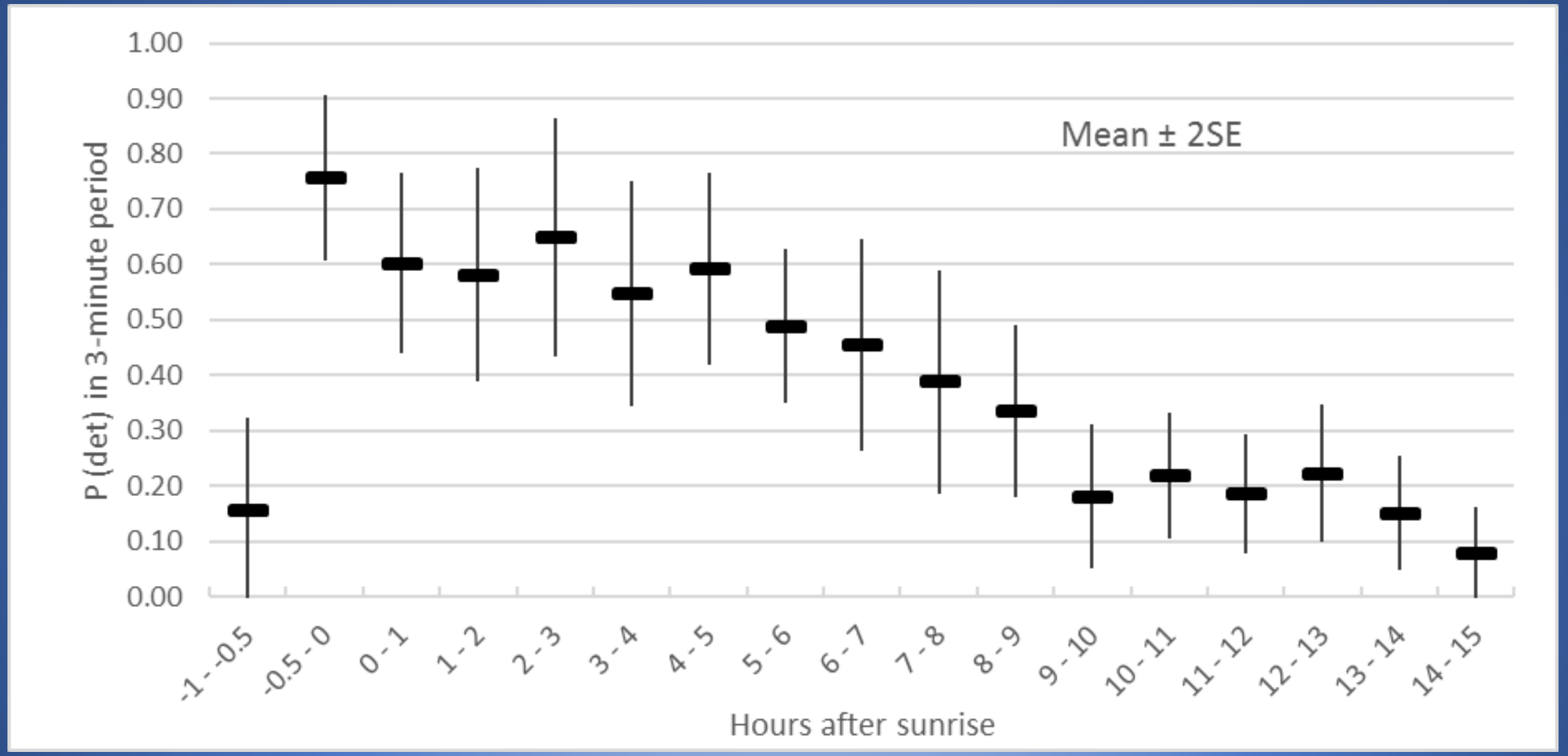
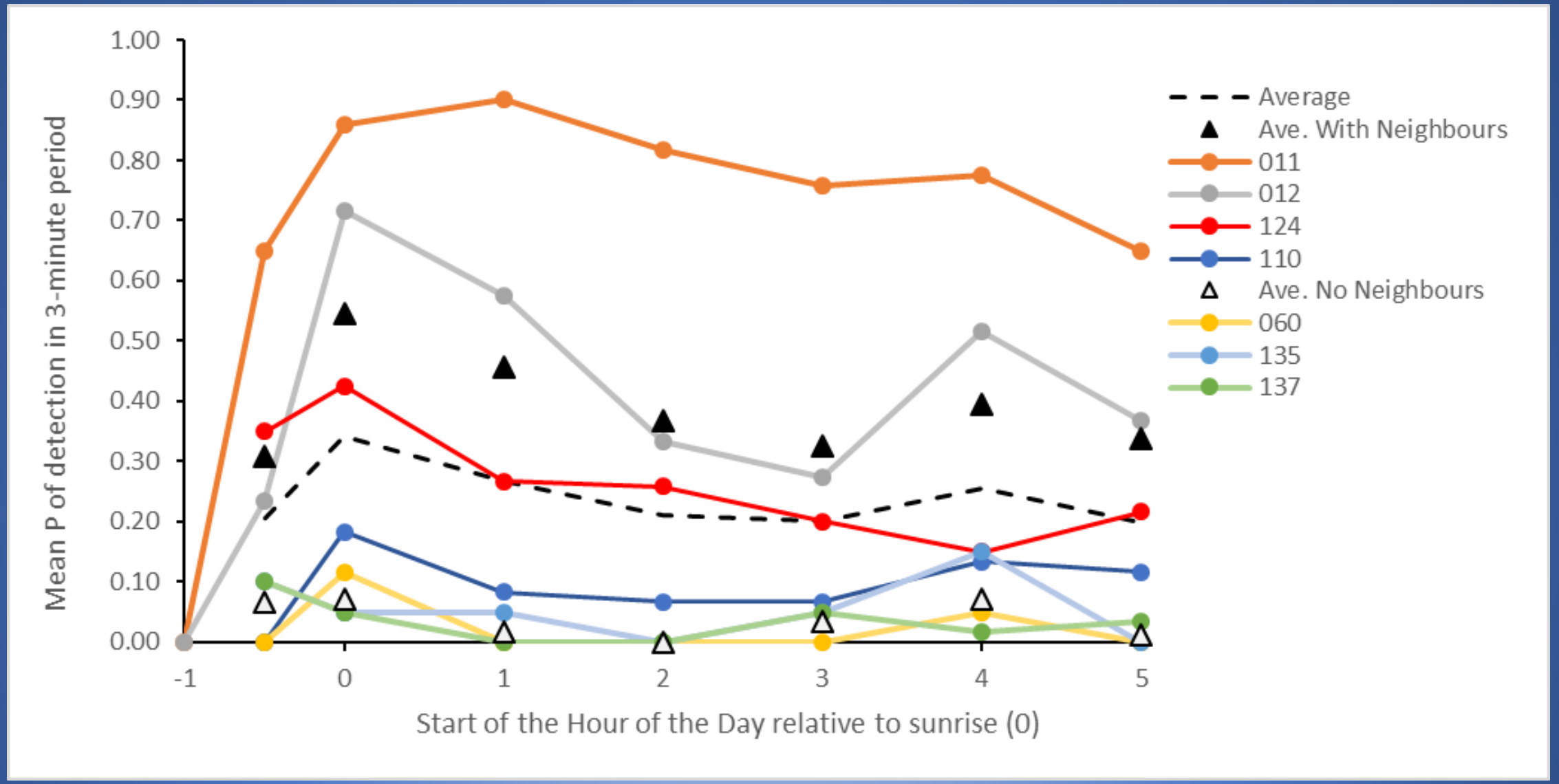
- probability of detection at dawn is not 100%
- too much other guesswork required.

But BBS method can work for WISA if we know:

1. Probability of Detection at Dawn in 3 min. periods.
2. Falloff in Detection Probability through morning. (ARUs)
3. Average Detection Distance: 202 m EDR from nest searches
4. Male vs female detectability? Would require field obsns.

Any estimate can be verified by actual nest/territory density on a subsample of BBS routes.

# Given that a WISA territory is occupied, probability of detection in 3 minutes of silent listening in April:



# Given that a WISA territory is occupied, probability of detection in 3 minutes of silent listening in mid-June: