

Re: Summer PRFA fieldwork?

Emmons, Gavin <Gavin_Emmons@nps.gov>

Wed 2022-04-20 3:01 PM

To: Becker, Benjamin H <Ben_Becker@nps.gov>

Cc: Hickey, Jena R <jena_hickey@nps.gov>

Yes, they are all in the same database. However, there is one important caveat. For 3-4 hour occupancy surveys, PRFA are documented with positive or negative occupancy records. However, PEFA are only documented for positive occupancy records. This is because PEFA were completely absent from PINN for the first 19 years of the falcon monitoring program, and PRFA were the main management and survey focus. After 2005 we have consistently had PEFA nesting at PINN, and have started to think more broadly of the I&M protocol as focused on falcon monitoring rather than just PRFA monitoring.

For all occupancy surveys since 2004 where PEFA are not recorded with positive occupancy records, you can assume negative occupancy records for PEFA. (I have been heading up the raptor monitoring program at PINN since 2004 and can at least speak confidently about the years I have been at PINN!)

I think at some point it would make sense to work with the SFAN data manager and try to batch add negative occupancy records for PEFA for all these years where we have not specifically included negative occupancy PEFA records... But that is probably a discussion for another time!

At any rate, hopefully that all makes sense!

Cheers,
Gavin

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From: Becker, Benjamin H <Ben_Becker@nps.gov>

Sent: Tuesday, April 19, 2022 10:52 AM

To: Emmons, Gavin <Gavin_Emmons@nps.gov>

Cc: Hickey, Jena R <jena_hickey@nps.gov>

Subject: Re: Summer PRFA fieldwork?

Thanks Gavin,

this is very helpful to get us started. Last question, are the PRFA and PEFA all in the same database from Wakamiya?

-Ben

From: Emmons, Gavin <Gavin_Emmons@nps.gov>

Sent: Tuesday, April 19, 2022 9:29 AM

To: Becker, Benjamin H <Ben_Becker@nps.gov>

Cc: Hickey, Jena R <jena_hickey@nps.gov>

Subject: Re: Summer PRFA fieldwork?

I'm happy to chat at some point, Ben. I don't know that I have all (or most!) of the answers you're looking for, but I'm happy to help where I can.

I don't think there are many papers / reports with firm causal connections made between some of the factors you mention and falcon occupancy / productivity but I will look around. PRFA and PEFA do use the same types of cliff-nesting sites and are potential competitors. A few published articles suggest that PEFA tend to outcompete PRFA for these sites, and in two territories historically used by PRFA for nesting, PEFA have basically taken over and are now nesting there instead. In two other territories, PRFA and PEFA have been nesting in fairly close proximity for the past few years.

I think it would be interesting to look at rainfall and temperatures to see if any factors can be tied to annual productivity, though my sense is that may prove difficult to see clear relationships. Over the years my sense is that - outside of very extreme weather events like the massive rainfall and flooding in 1998 that led to complete PRFA nest failures for the year - one of the most important factors is prey availability. For PRFA their main prey source is California ground squirrels... and I assume it would be difficult to tease out squirrel populations from year to year as we don't really have the survey mechanisms in place for that. I think weather / rainfall can likely have an effect on this, but may be delayed by a year (e.g. with moderate rainfall in a given year leading to higher squirrel populations in a subsequent year, even if that latter year is marked by more drought conditions).

There is also the potential factor of nest predators like great horned owls and common ravens... but we don't have the capacity to survey effectively for these either.

In regards to detection - we can certainly chat about that as well. We have adopted the survey standard of three 3-4 hour surveys every month or so to confirm occupancy or lack thereof, and schedule surveys to avoid inclement weather. Occupied territories are revisited to confirm nesting or non-nesting pairs, and survey points generally afford very open and broad views for observation.

At any rate, lots to think about but I'd be happy to chat whenever it is convenient for you!

Cheers,
Gavin

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From: Becker, Benjamin H <Ben_Becker@nps.gov>
Sent: Tuesday, April 19, 2022 9:04 AM
To: Emmons, Gavin <Gavin_Emmons@nps.gov>
Cc: Hickey, Jena R <jena_hickey@nps.gov>
Subject: Re: Summer PRFA fieldwork?

and of course we'll also need to pick your brain during the summer on "reality checks" when developing the occupancy models. I know very little about the system at this point. I'd like to know if there are potential positive or negative interactions between the PEFA and PRFA that would effect occupancy for each species and environmental potential covariates (annual rainfall, winter or spring temperatures?) that might affect interannual occupancy in general or on a site by site basis. We also need to see if there

are covariates (daily weather?) that could affect your ability to detect an occupied or reproductive nest. If there are PEFA and PRFA interactions and we have the data on occupancy for both species, we would create a two-species occupancy model.

Perhaps we should talk sometime in the next month so I can ask questions? I'd also appreciate any relevant papers or reports you know of.

thanks - Ben

From: Emmons, Gavin <Gavin_Emmons@nps.gov>
Sent: Tuesday, April 19, 2022 8:10 AM
To: Becker, Benjamin H <Ben_Becker@nps.gov>
Cc: Hickey, Jena R <jena_hickey@nps.gov>
Subject: Re: Summer PRFA fieldwork?

Sounds good, Ben. Thanks!

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From: Becker, Benjamin H <Ben_Becker@nps.gov>
Sent: Monday, April 18, 2022 6:54 PM
To: Emmons, Gavin <Gavin_Emmons@nps.gov>
Cc: Hickey, Jena R <jena_hickey@nps.gov>
Subject: Re: Summer PRFA fieldwork?

Thanks for the details Gavin,

If something works out, great...if not, so it goes.

I'll circle back when we have the student and see if anything is possible.

Good luck in the field this spring.

-Ben

From: Emmons, Gavin <Gavin_Emmons@nps.gov>
Sent: Monday, April 18, 2022 6:17 PM
To: Becker, Benjamin H <Ben_Becker@nps.gov>
Cc: Hickey, Jena R <jena_hickey@nps.gov>
Subject: Re: Summer PRFA fieldwork?

Hi Ben -

I would be open to a student spending a few days with me in the field... The main issue is that the fieldwork tends to be mostly finished up by mid June. Usually PRFA and PEFA fledge young from late May to mid June. There may still be a few nests with later fledging dates, though... I'll have a better sense of that after young have hatched and I've had a chance to get some nestling ages confirmed.

Perhaps we can circle back on this as the nesting season moves along and I have a clearer picture of fledging schedules.

The other major logistical realities are the intense heat here in the summer and potentially long / strenuous hiking days. But assuming the person you bring on is fine with that, and assuming there are still some active falcon nests, I'm sure we could make some days work out for fieldwork.

Cheers,
Gavin

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From: Becker, Benjamin H <Ben_Becker@nps.gov>
Sent: Monday, April 18, 2022 1:54 PM
To: Emmons, Gavin <Gavin_Emmons@nps.gov>
Cc: Hickey, Jena R <jena_hickey@nps.gov>
Subject: Summer PRFA fieldwork?

Hi Gavin,

I hope to have a UC Berkeley undergraduate or post graduate assist me this summer with the PRFA occupancy analysis. Would it be possible for this person to spend a few days in the field with you this summer? While not necessary to complete the analysis, we are recruiting through a program to provide research experience for underrepresented students in science to prepare them for graduate work, so adding some field time would be a great bonus. They could tag along or, if appropriate, help with whatever you need help on. I don't know the skillset yet as we have not received applications. The student would start after June 12 and continue through July and August.

Thanks for considering. This isn't intended to be a burden so if it is not practical, no problem.

-Ben

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