

# Return of the American Kestrel to Sandy Mush Game Lands

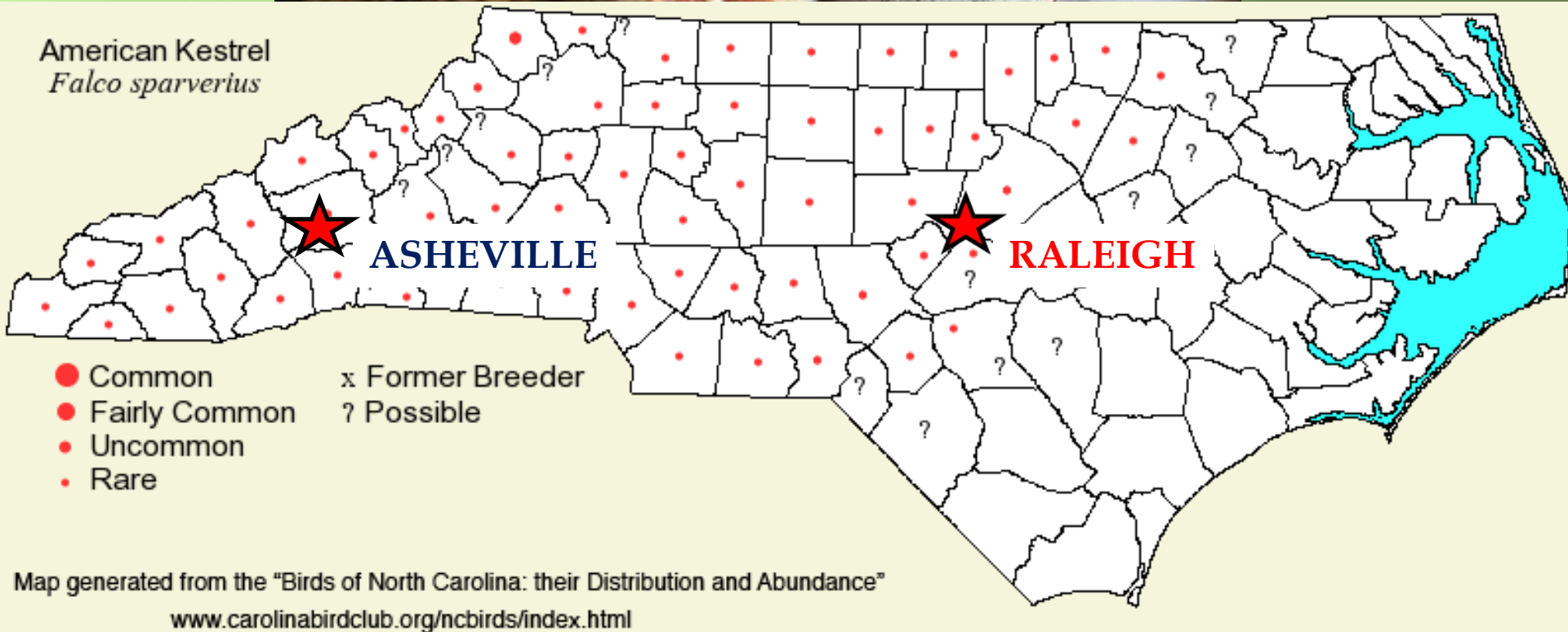


Mark Hopey, Southern Appalachian Raptor Research  
Joe Tomcho, North Carolina Wildlife Resources Commission

# NC Breeding Season Range

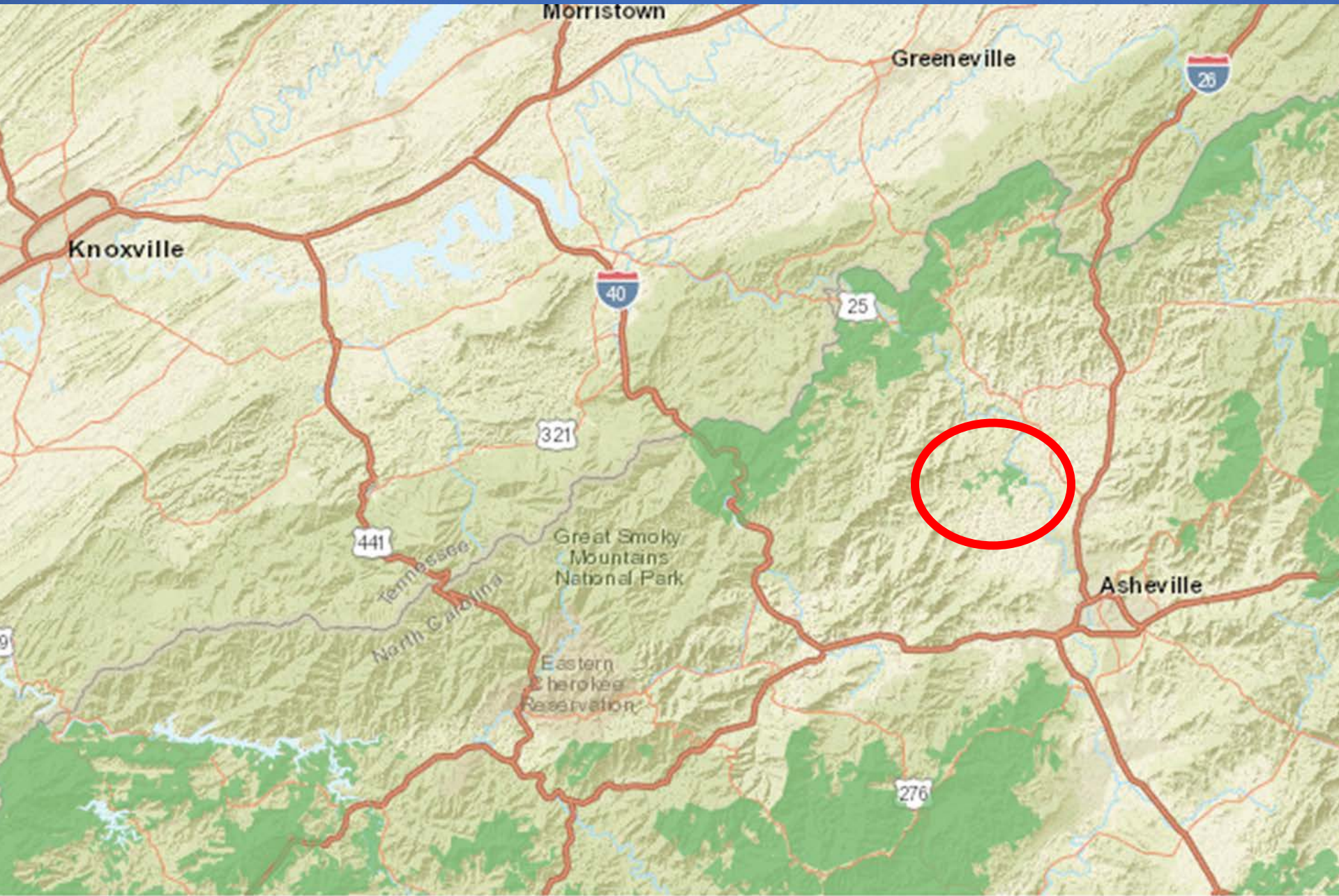


SANDY MUSH GAME LANDS



Map depicts breeding season and abundance for AMKE in 2012

# Sandy Mush Game Lands



- ▣ 2800 acres
- ▣ Forested: 1700 acre
- ▣ Early Succession: 1100 acres



# Sandy Mush Game Lands Habitat Management



- Controlled burns
- Chainsaw thinning
- Targeted herbicide

# Habitat Management



- Seasonal plantings include :
- food plots
  - warm-season grasses

# Goals and Objectives

- ▣ Increase American Kestrel population
- ▣ Monitor kestrel population and record reproductive parameters
- ▣ Identify prey base
- ▣ Track nest site fidelity and post breeding movements
- ▣ American Kestrel Genoscape Project



Increase American Kestrel population

# Nest Box

2009 - 3 boxes

2010 - 15 boxes

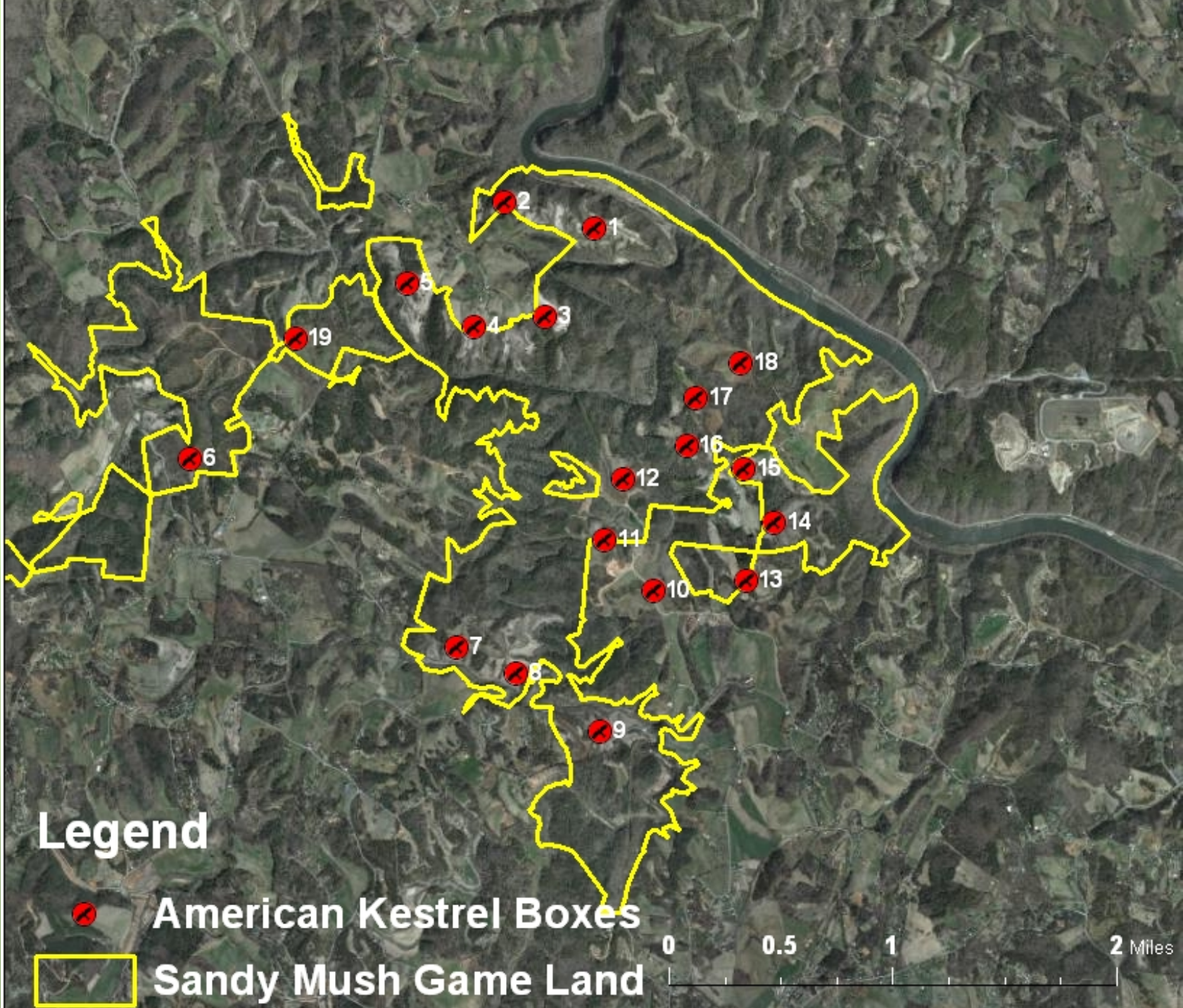
2012 - 3 boxes

18 on game lands and  
3 on private lands

Spaced  $>500$  m from  
adjacent box







# Timeline and Protocol

- ✦ February - Clean nest boxes
- ✦ March - Monitoring 'Nest Check'
  - Check nest box every two weeks
    - record #eggs, #nestlings and age, food,
    - adult behavior and color bands
- ✦ May and June - Band nestlings
- ✦ Late May thru July - Conduct fledge check @ 35-37d post-hatching, record color band and sex
- ✦ Post fledgling - Clean out and recheck early nesters for double clutching
- ✦ Anytime - Remove and destroy EUST nest and contents, must climb all boxes at least once/month
- ✦ **Data shared with American Kestrel Partnership**



# Nest Check



Check nest box every two weeks  
record #eggs, #nestlings and age, food,  
adult behavior and color bands

# Color Banding 16-27d Old



USFWS (metal) and plastic color bands are applied and sealed with heat or solvent. Color bands are used to visually identify individual birds.



record sex, weight, condition and age.

# Fledge Check



✈️ Conduct fledge check 35-37 days post-hatching

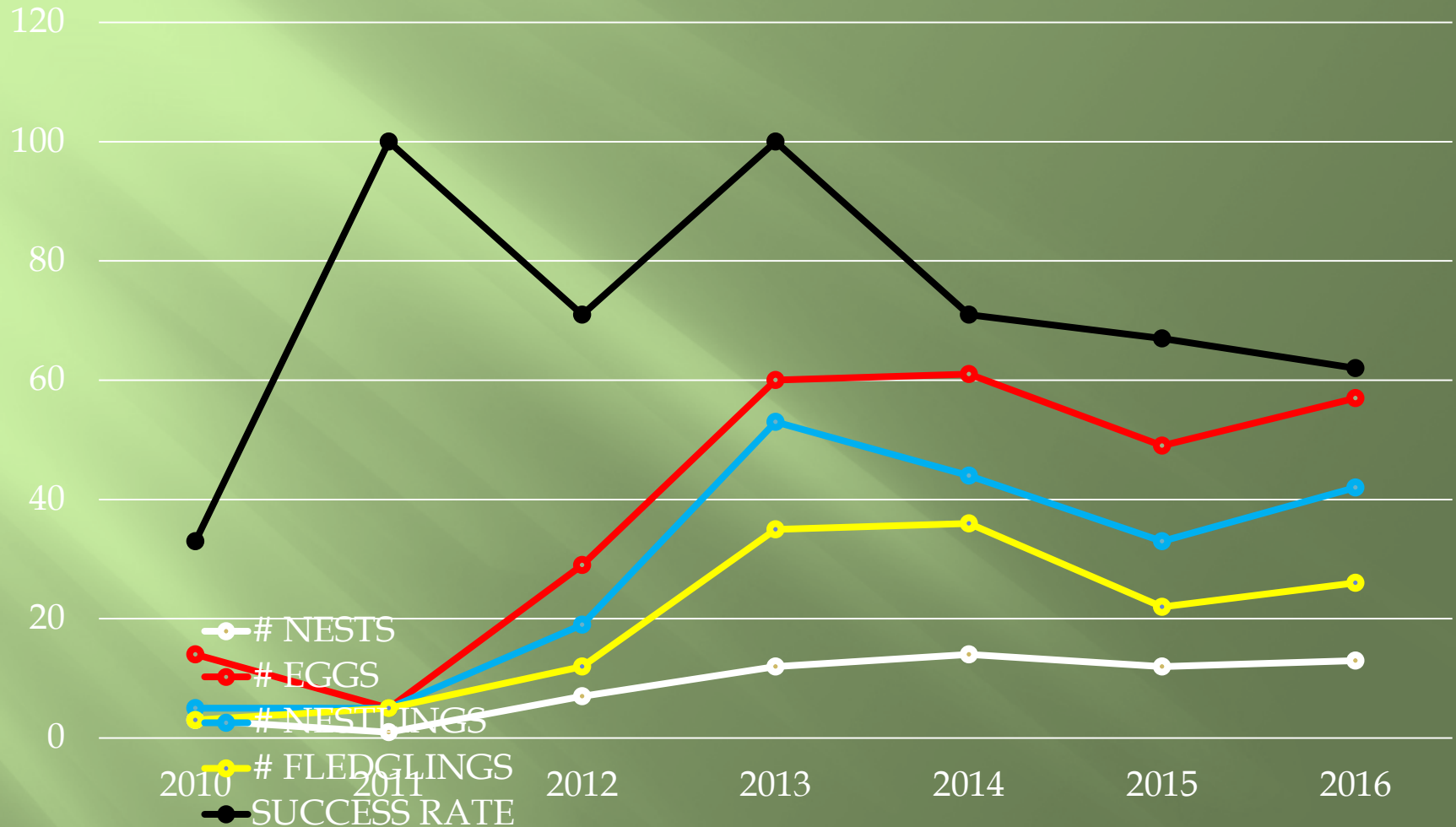
✈️ Record band color combo and gender

# Kestrel Productivity

YEAR	# NESTS	# SUCCESSFUL NESTS*	# EGGS	# NESTLINGS	TOTAL # BANDED	# FLEDGED	# EGG/NEST	# NESTLINGS /NEST	# BANDED /NEST	# FLEDGLINGS /NEST
2010	3	1	14	5	no banding	3	4.7	1.7		1
2011	1	1	5	5	5	5	5	5	5	5
2012	7	5	29	19	19	12	4.1	2.7	2.7	1.7
2013	12	12	60	53	48	35	5	4.4	4	2.9
2014	14	10	61	44	42	36	4.4	3.1	3	2.6
2015	12	8	49	33	29	22	4.1	2.8	2.4	1.8
2016	13	8	57	42	30	26	4.4	3.2	2.3	2
<b>TOTALS</b>	<b>62</b>	<b>45</b>	<b>275</b>	<b>201</b>	<b>173</b>	<b>139</b>	<b>4.4</b>	<b>3.2</b>	<b>2.9</b>	<b>2.2</b>

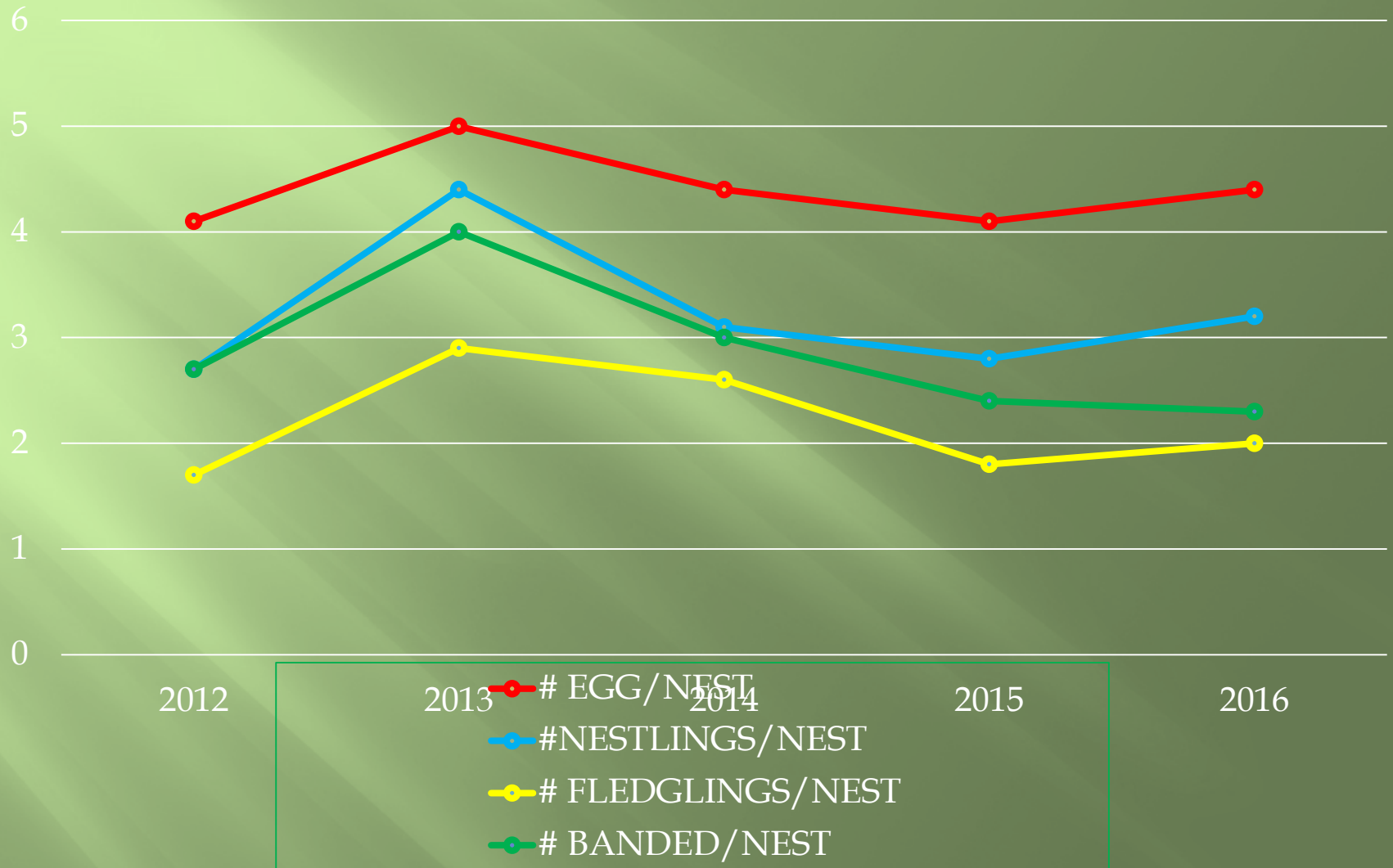
\*Success is determined by at least one nestling reaching a band-able age (16-27d old).  
Data includes re-nests, 4/6 successful.

# Kestrel Productivity

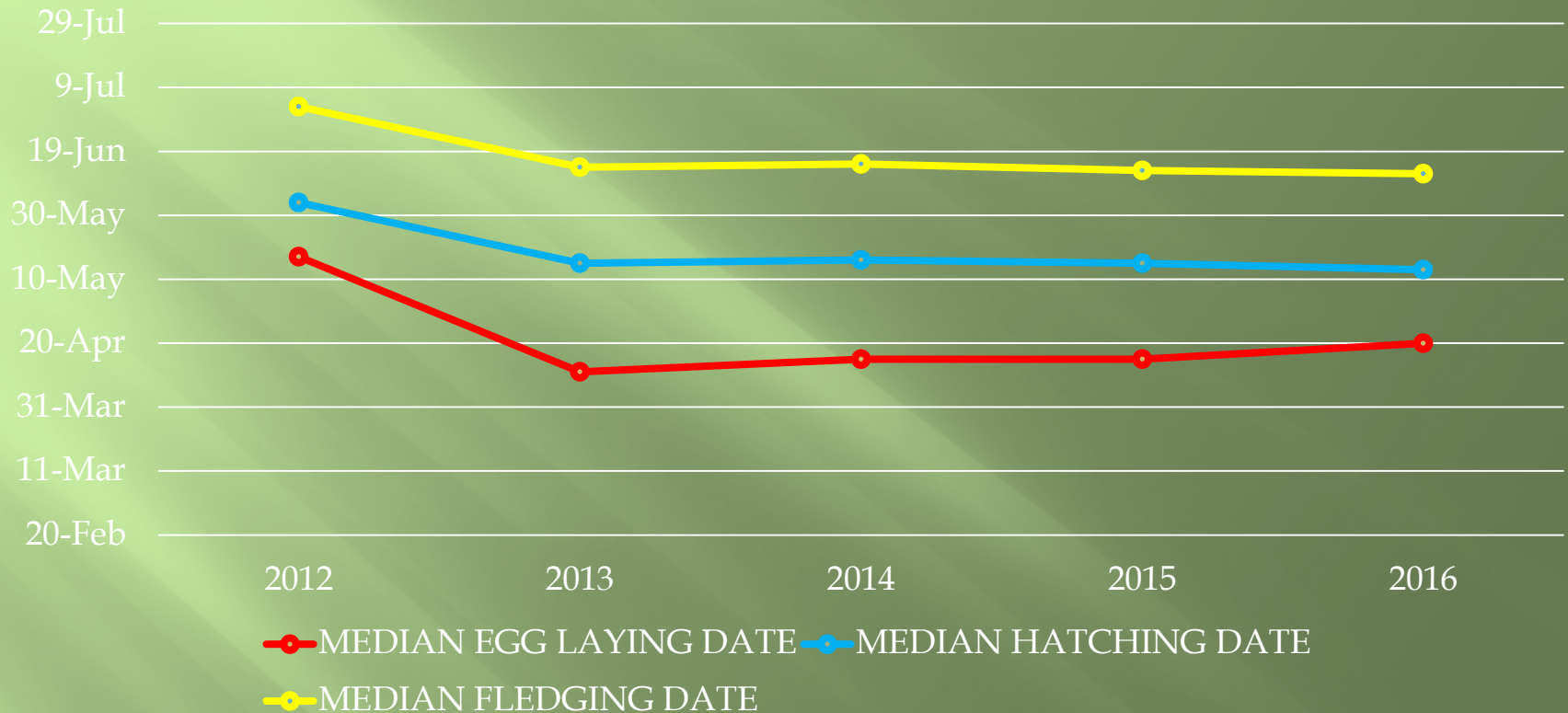




# Kestrel Productivity



# Median Egg, Hatching and Fledging Dates



YEAR	EGG LAYING	HATCHING	FLEDGLING
2012	27 MAR- 28 MAY	29 APR- 01 JUL	29 MAY-31 JUL
2013	28 MAR- 28 MAY	02 MAY- 30 JUN	01 JUN- 30 JULY
2014	01 APR- 28 MAY	06 MAY- 30 JUN	01 JUN- 30 JULY
2015	18 MAR- 02 JUN	22 APR-0 5 JUL	22 MAY- 04 AUG
2016	26 MAR-24 MAY	29 APR-26 JUN	29 MAY- 25 JULY

# Starlings Were a Big Problem...



2010 – 11

2011 – 15

2012 – 14

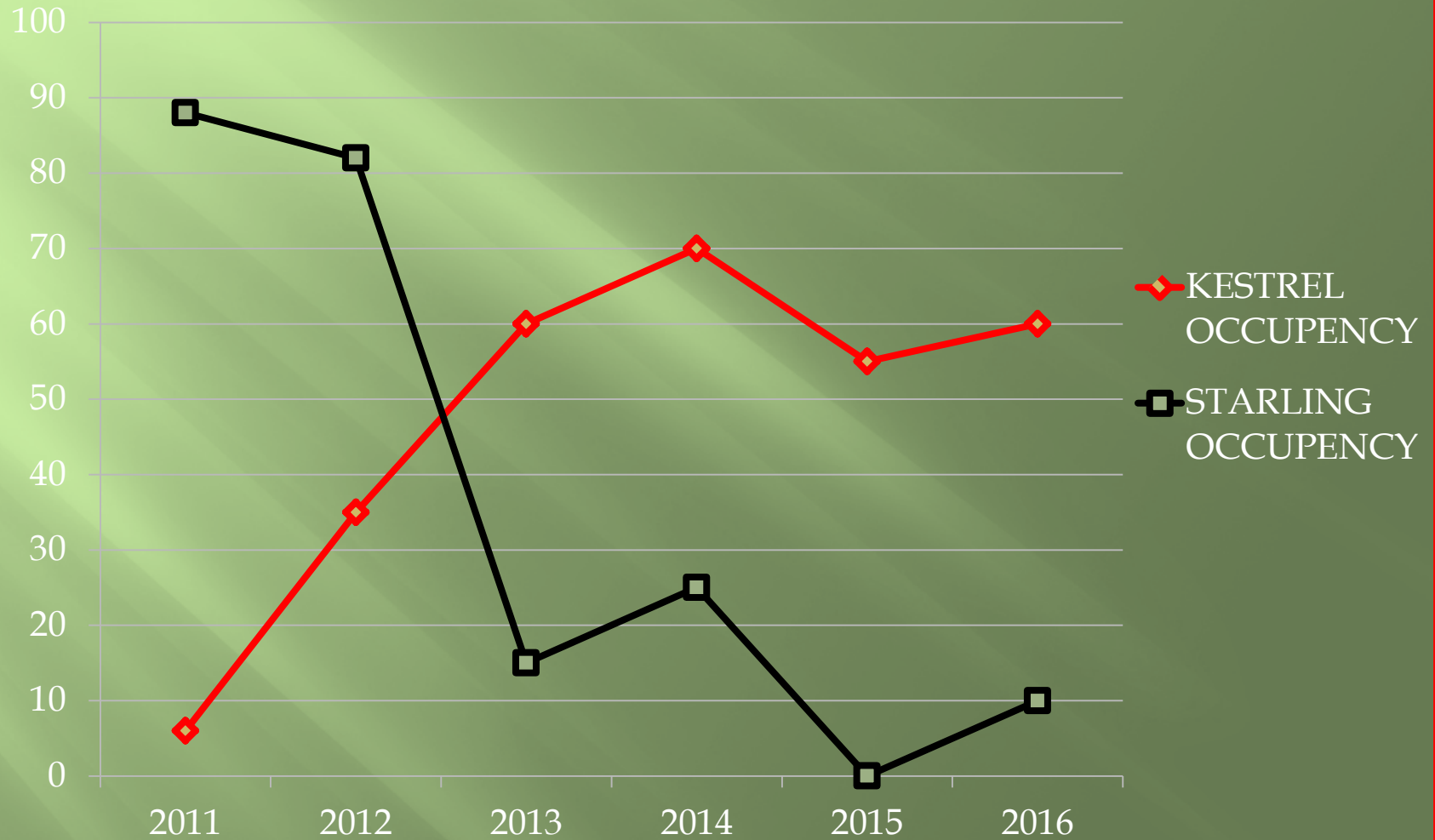
2013 – 3

2014 – 5

2015 – 0

2016 – 2

# % Nest Box Use



# Predators







Future Research



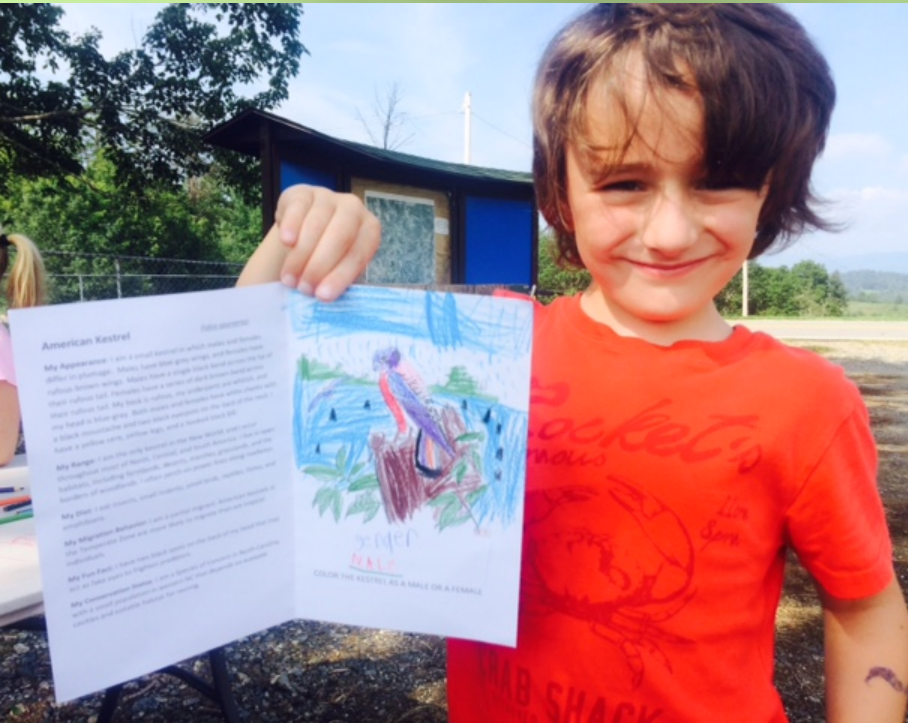


# Future Research



# Education

- Over 300 students since 2012
- Primary to university
- Hands-on training for pre-professionals



# Participation



## Participation

Hands-on experiences that foster environmental awareness and stewardship



# Participation





# Thank You



SOUTHERN APPALACHIAN RAPTOR RESEARCH



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THE  
PEREGRINE  
FUND



**Western  
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partnership

# Questions and Contacts

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