

Status of Mexican Spotted Owls and Use of Dry Mixed-conifer Forest

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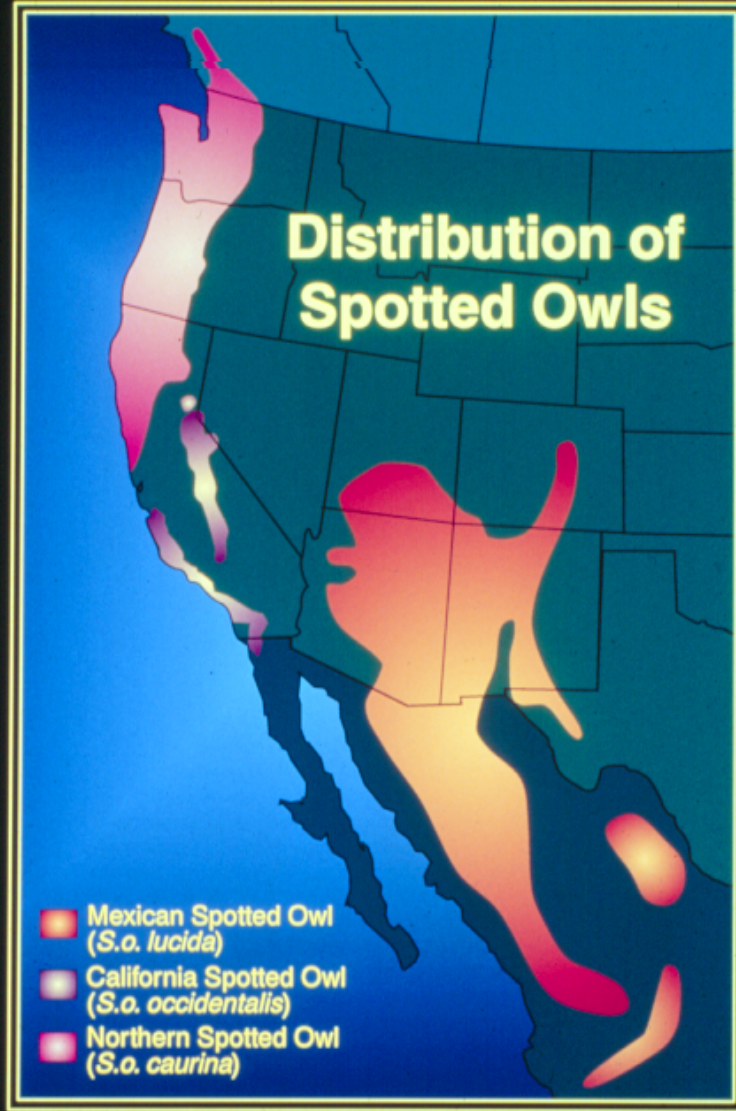
Road Map

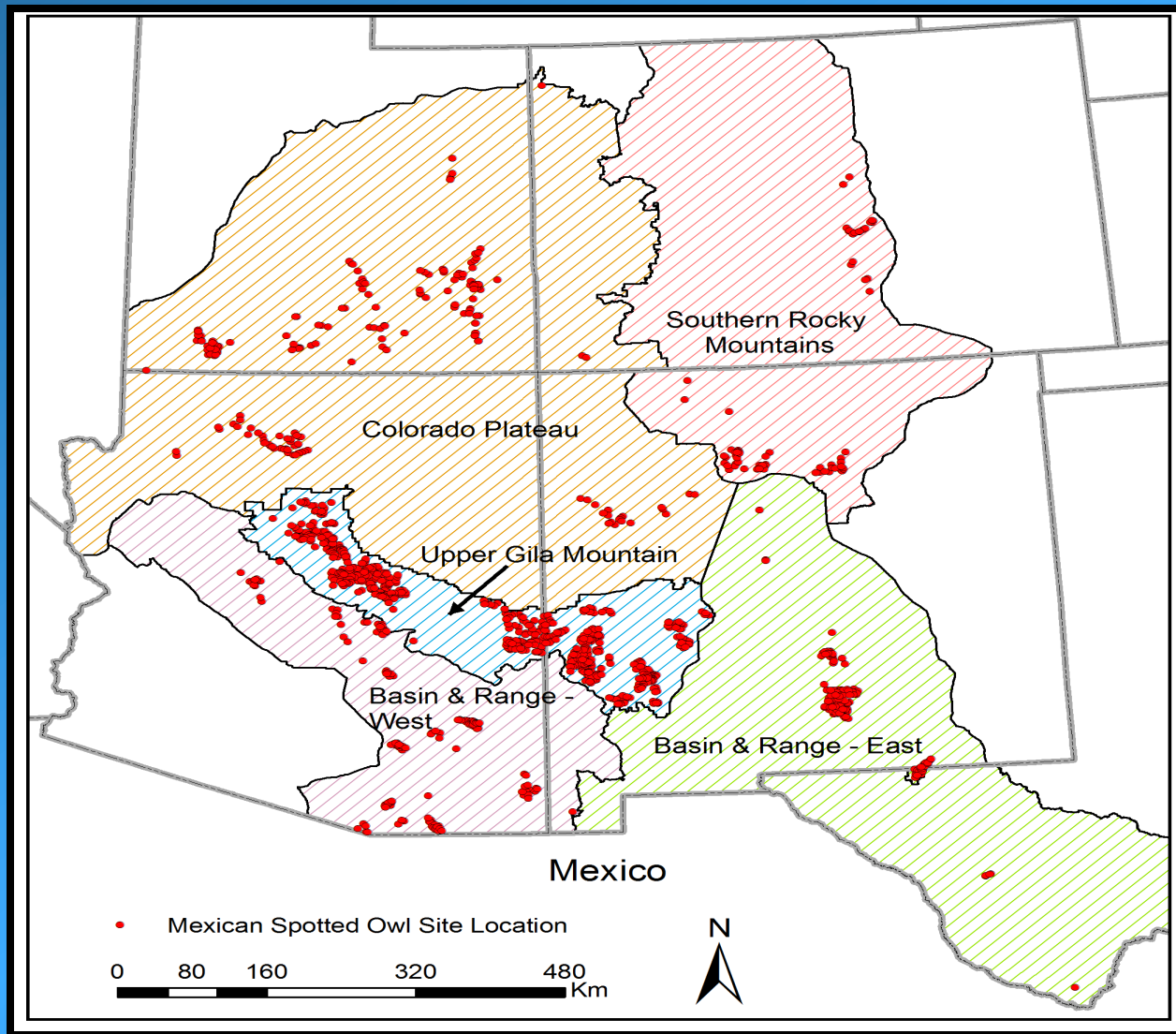
- Background/ Natural history
- Characteristics of dry mixed-conifer forests used by owls
- Reasons behind habitat use
- Lead-in to subsequent talk



Distribution of Spotted Owls

-  Mexican Spotted Owl
(*S.o. lucida*)
-  California Spotted Owl
(*S.o. occidentalis*)
-  Northern Spotted Owl
(*S.o. caurina*)









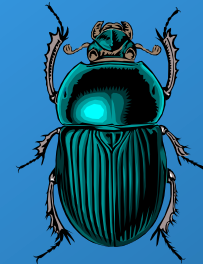






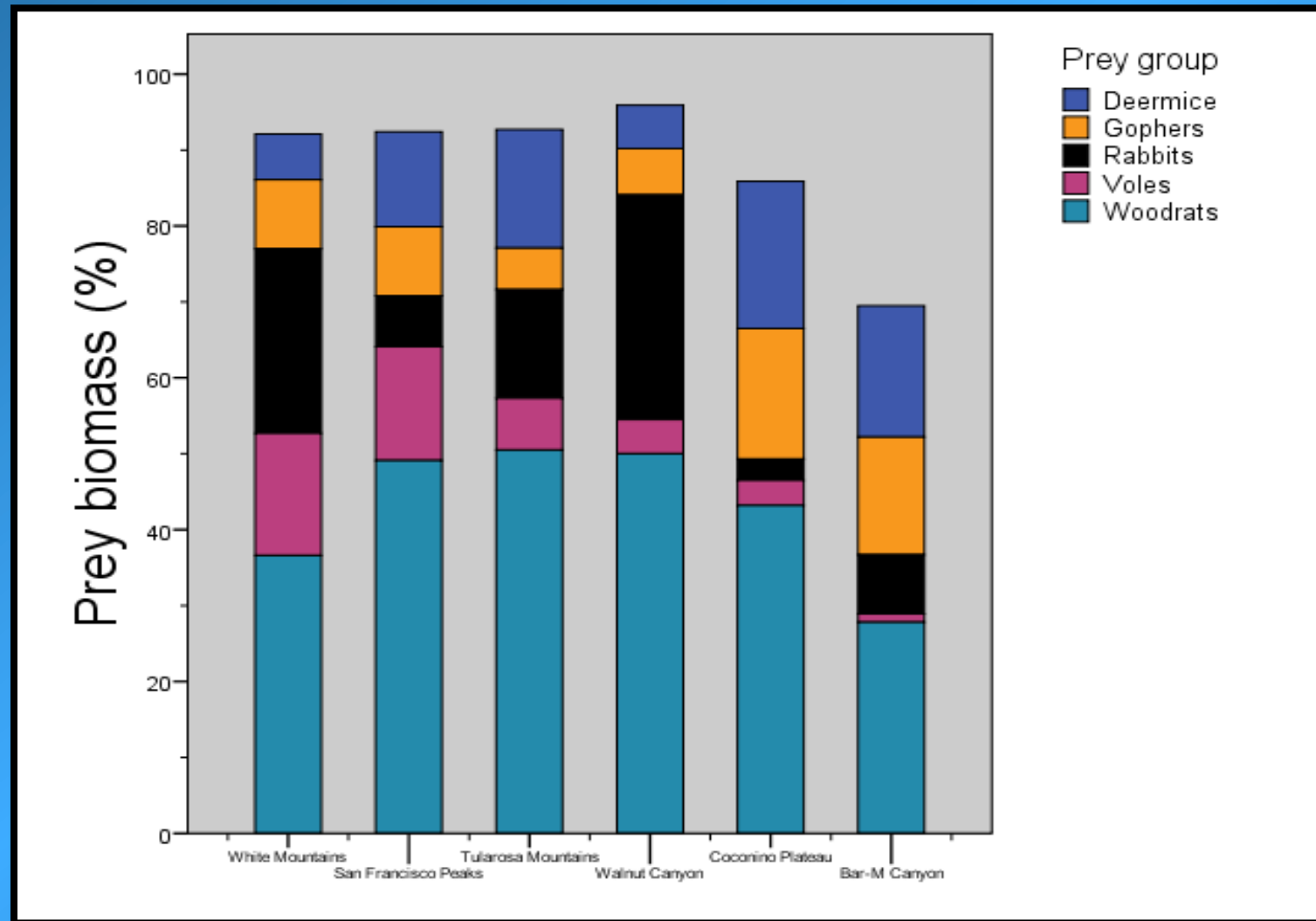




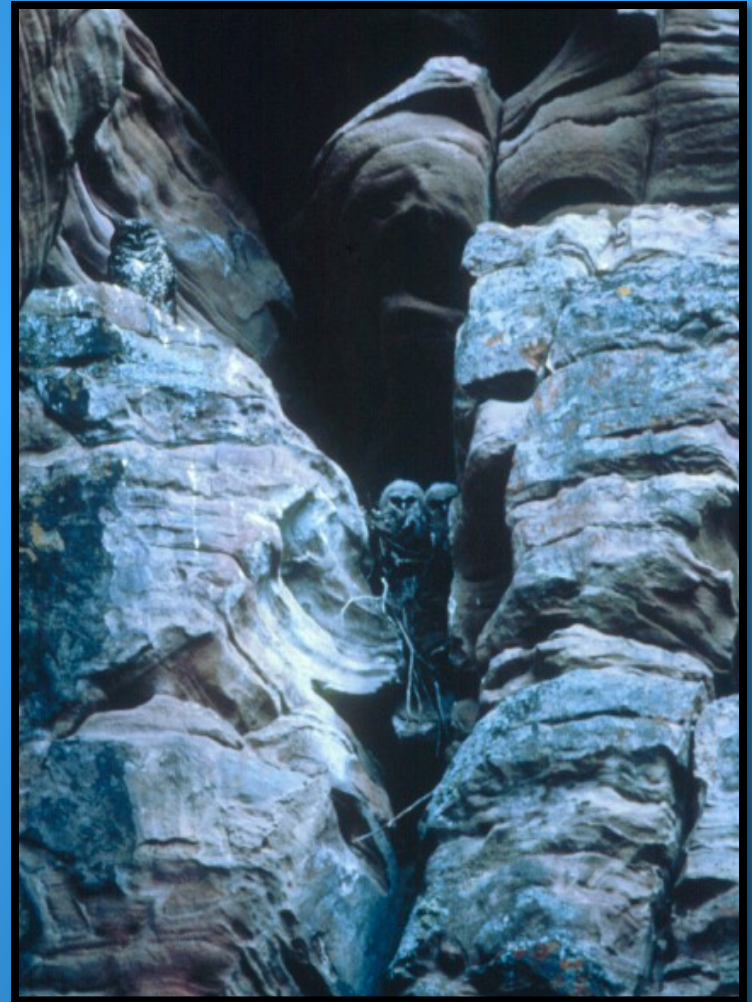


Diet Composition

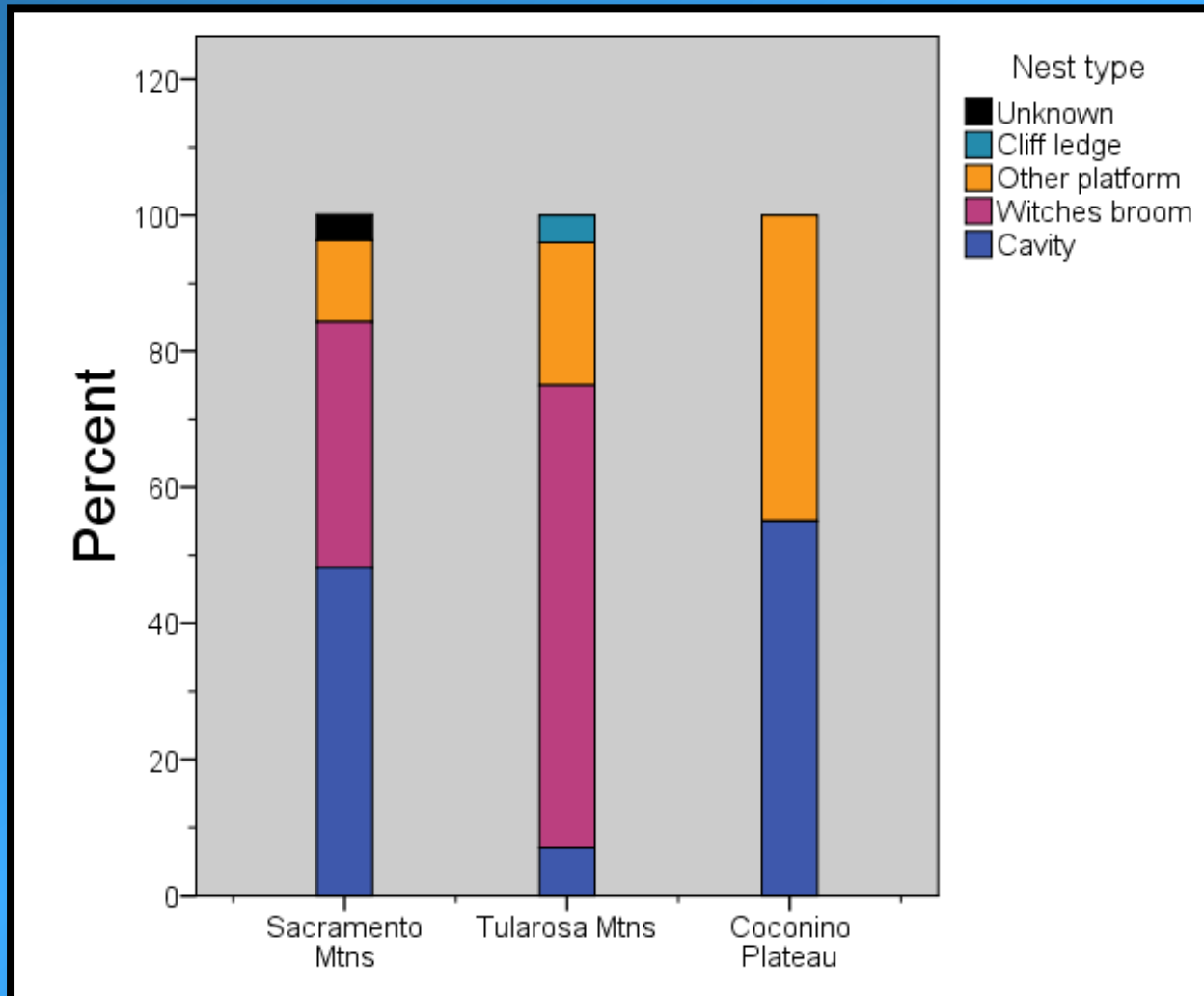
(Ganey 1992, Seamans and Gutiérrez 1999)







Use of Nest Structures



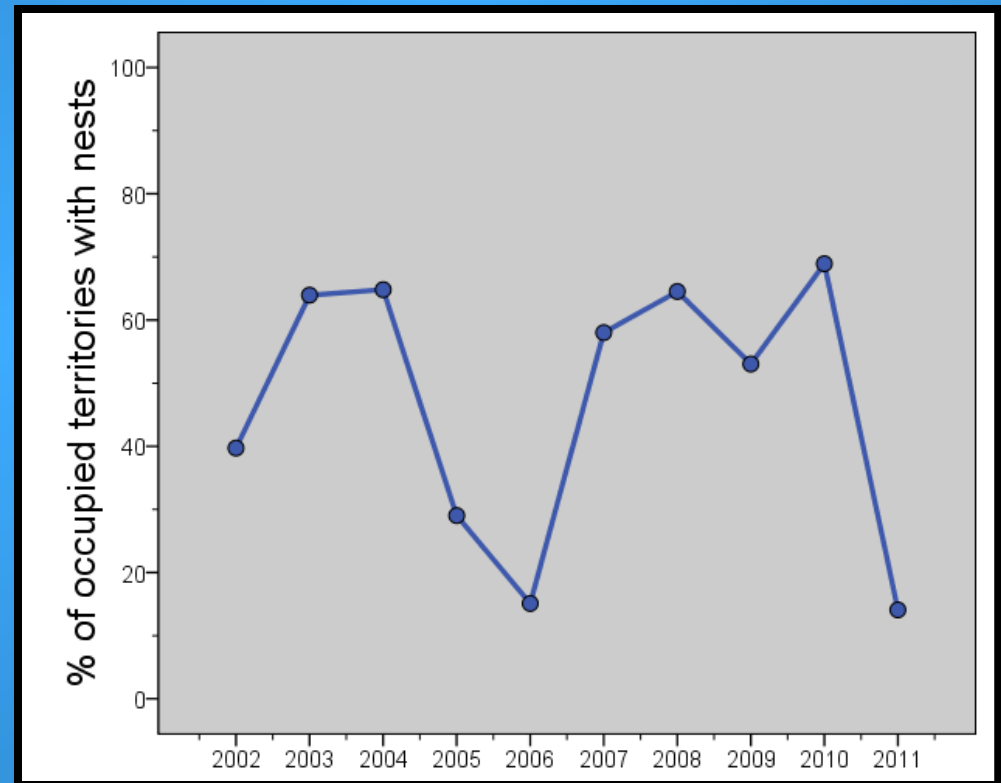
Nesting Chronology



- Eggs laid early – to mid - April
- Eggs hatch early – to mid – May
- Young fledge early – to late – June
- Young disperse Sep - Oct

Life History Characteristics

- Breeding sporadic
- Clutch size low (1 – 3)
- Adult survival high (>85% most yrs)
- Juvenile survival lower, variable



Population Trend

Study area	Years	Lambda
Tularosa Mtns ¹	1991–98	0.857
Coconino Plateau ¹	1991–98	0.896
Four NM ranges ²	1991–99	0.803
Sacramento Mtns ³	2005–09	Females: 1.088 Males: 1.073

¹ Seamans et al. 1999

² Stacey and Peery 2002

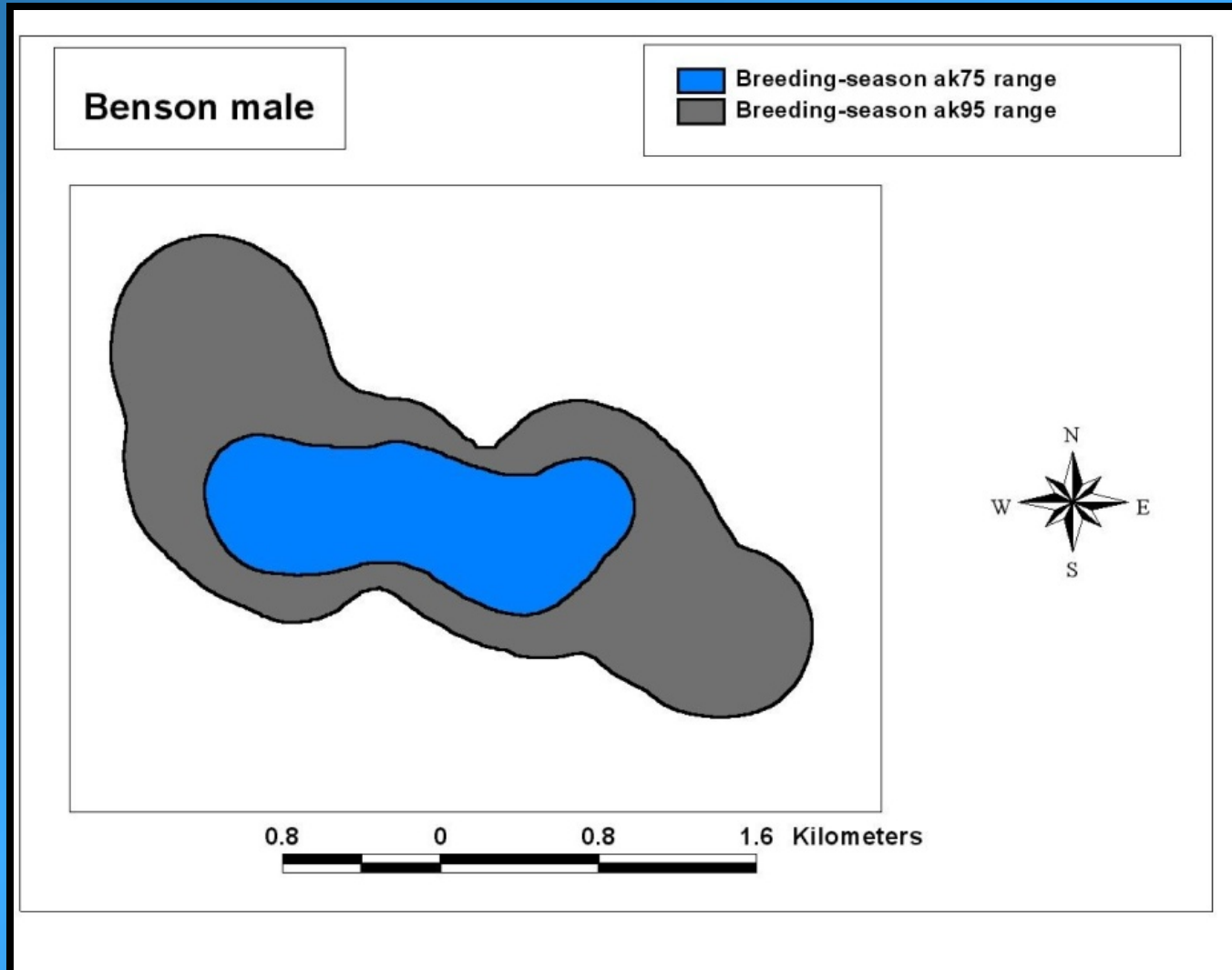
³ Ganey et al. unpublished

Owl Pair Home Range Size (ac)

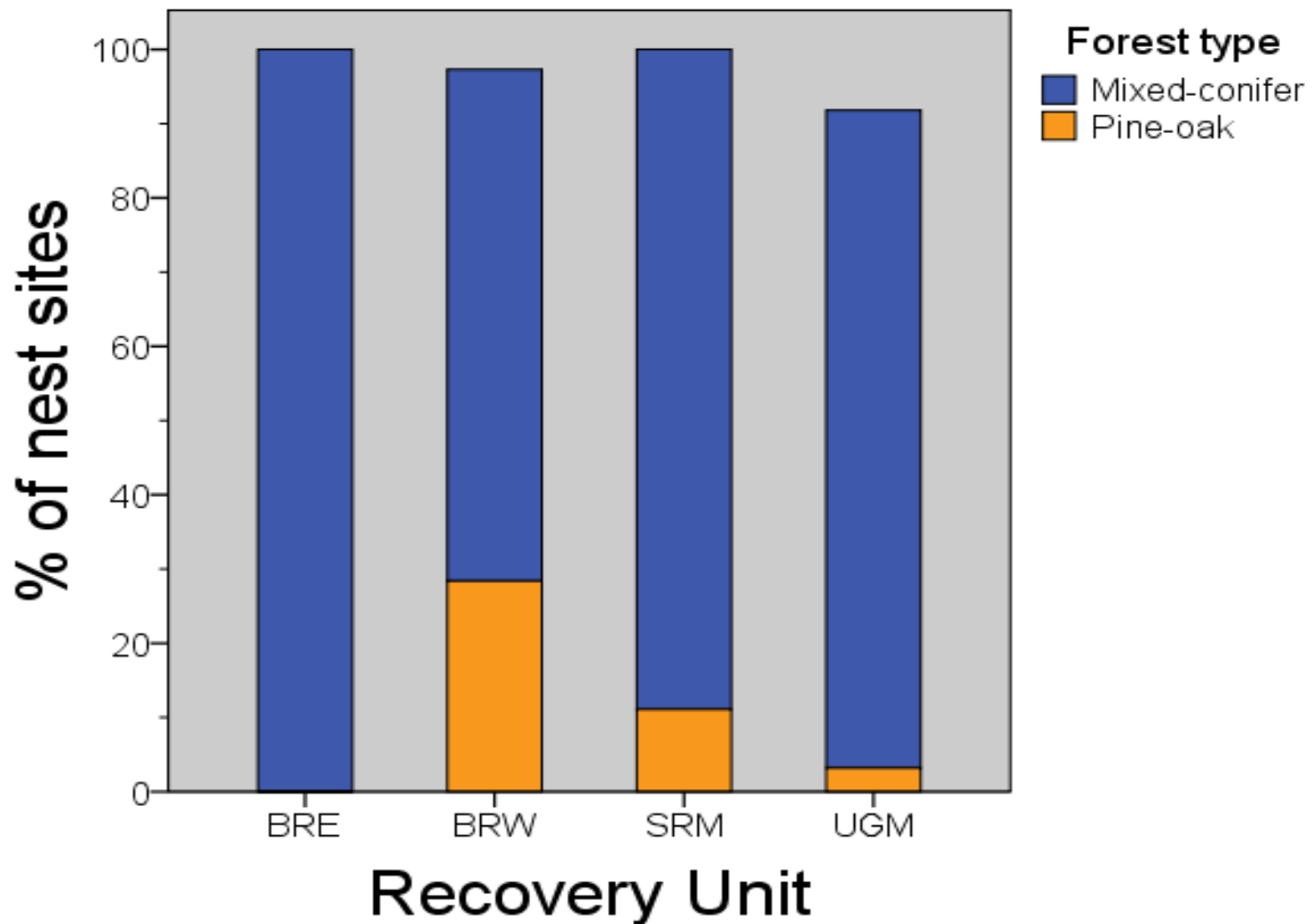
(Ganey and Dick 1995)

Recovery Unit	Study areas	Owl pairs	Mean	Range
Upper Gila Mountains	3	10	3,311	942 – 3,833
Basin and Range - East	2	8	2,239	1,416 – 3,462

Activity Centers

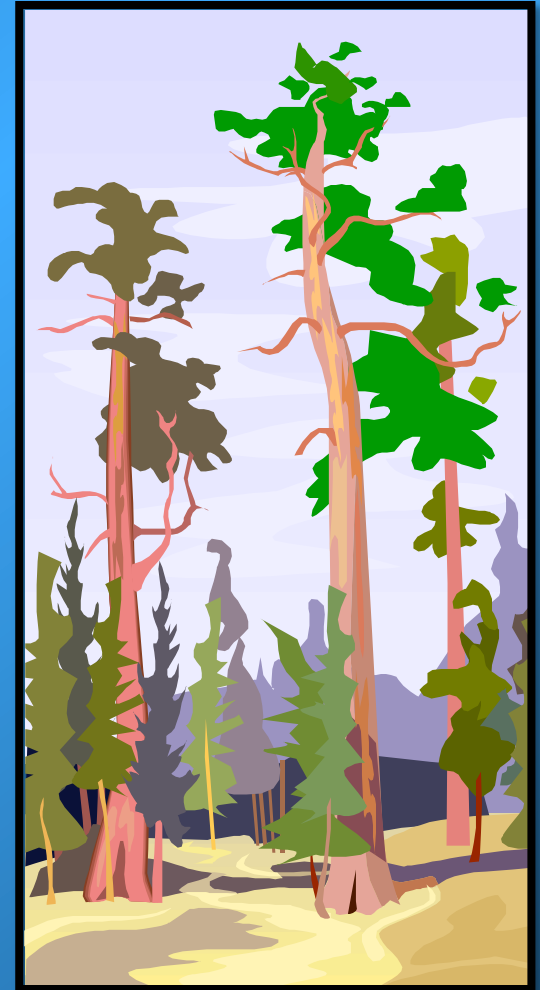


Nest Sites by Cover Type (Ganey and Dick 1995)

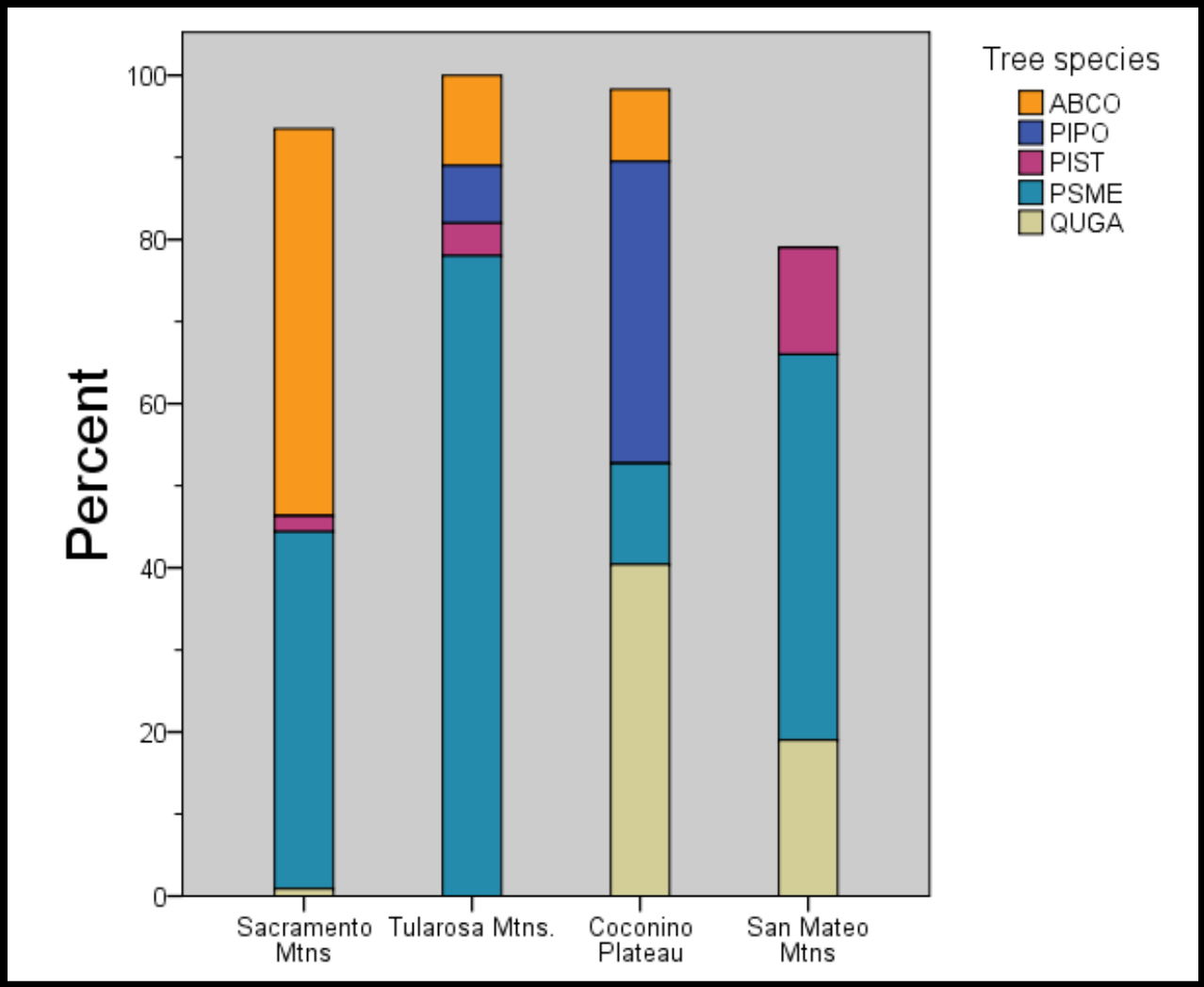


Nest Trees

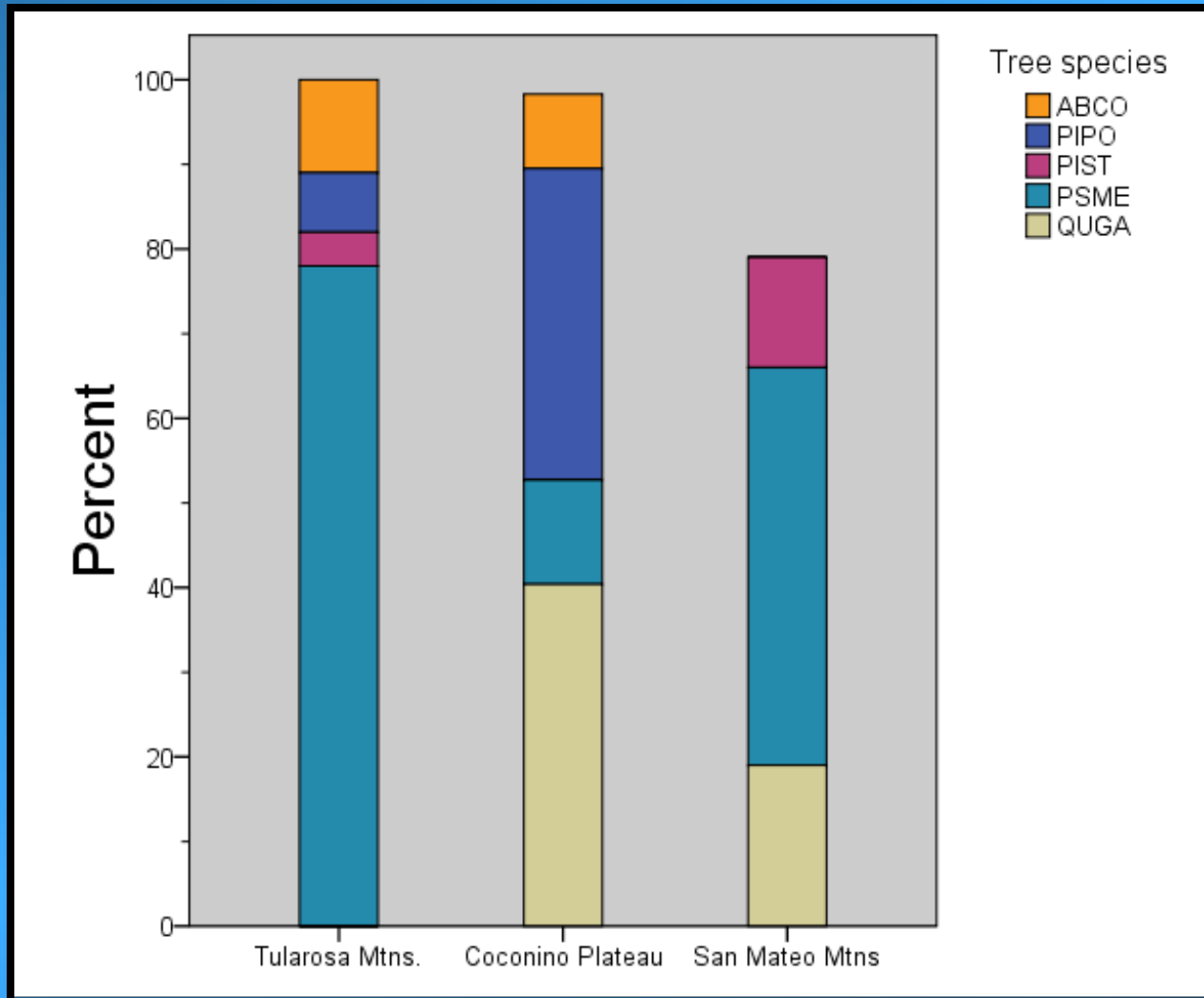
- Tularosa Mountains
(Seamans and Gutiérrez 1995)
 - Dbh = 23.9 ± 8.8 in
 - Age = 163.6 ± 44.8 yrs
- Coconino Plateau
(May et al. 2004)
 - Mean dbh = 24.6 in
- Sacramento Mountains
(Ganey unpublished data)
 - Dbh = 28.9 ± 0.9 in



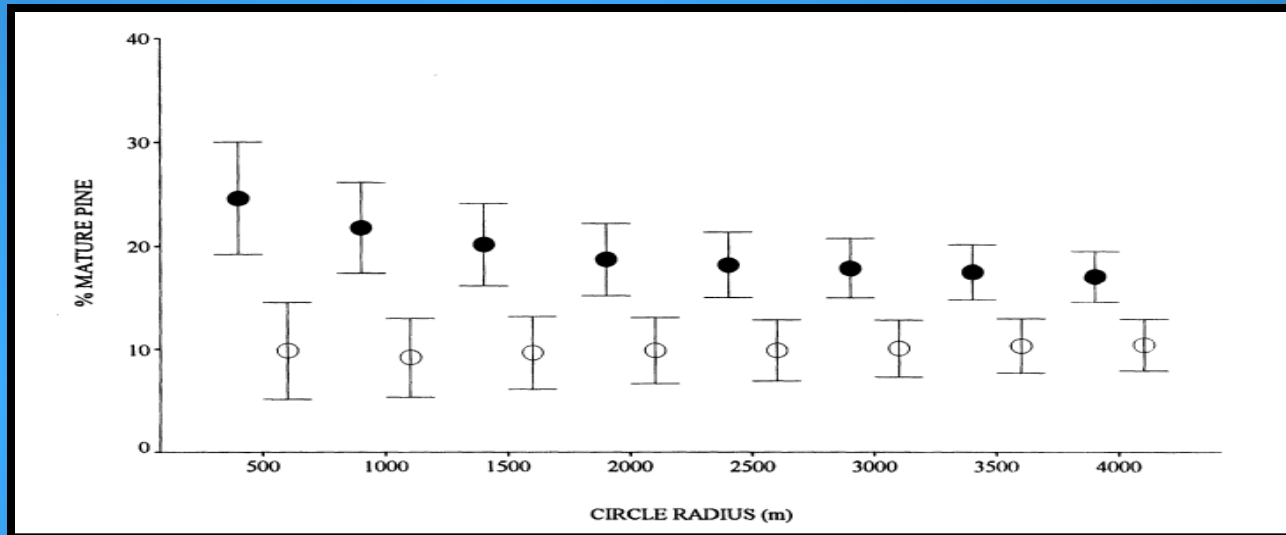
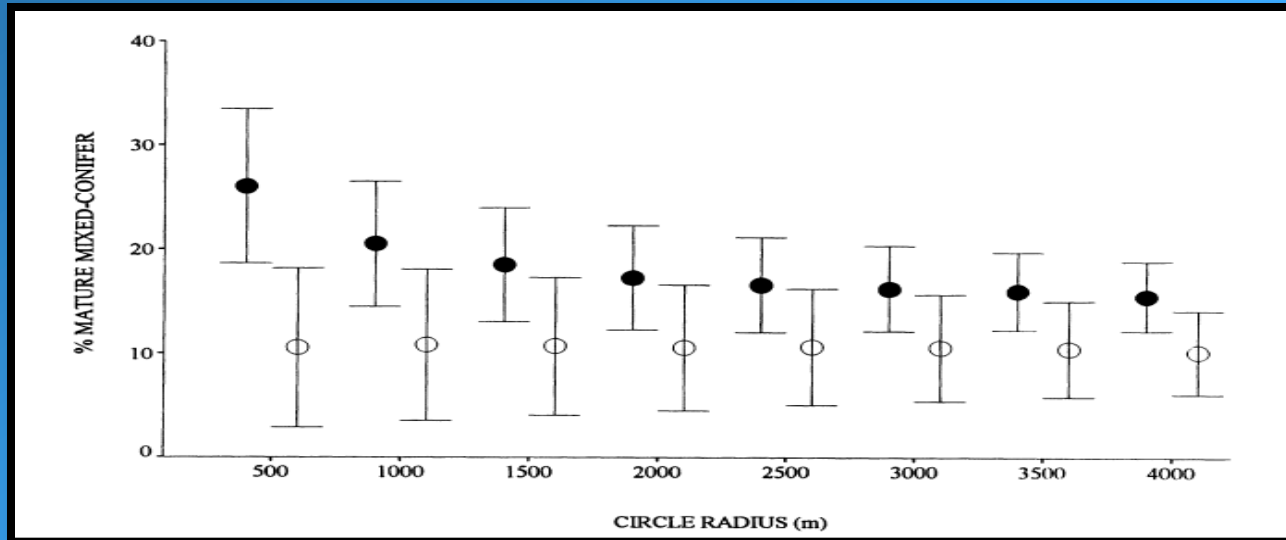
Nest or Roost Tree Use by Species



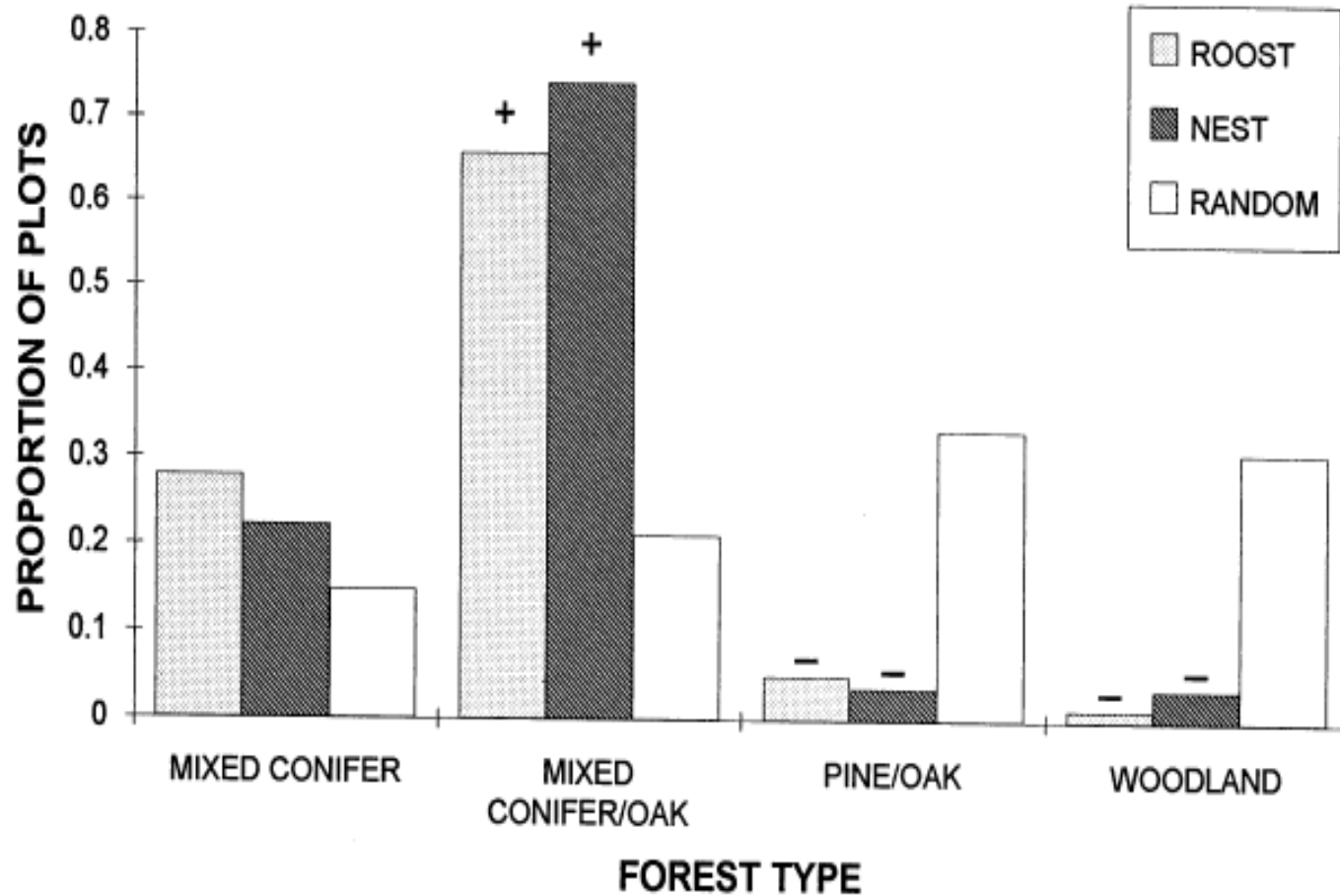
Nest or Roost Tree Use by Species



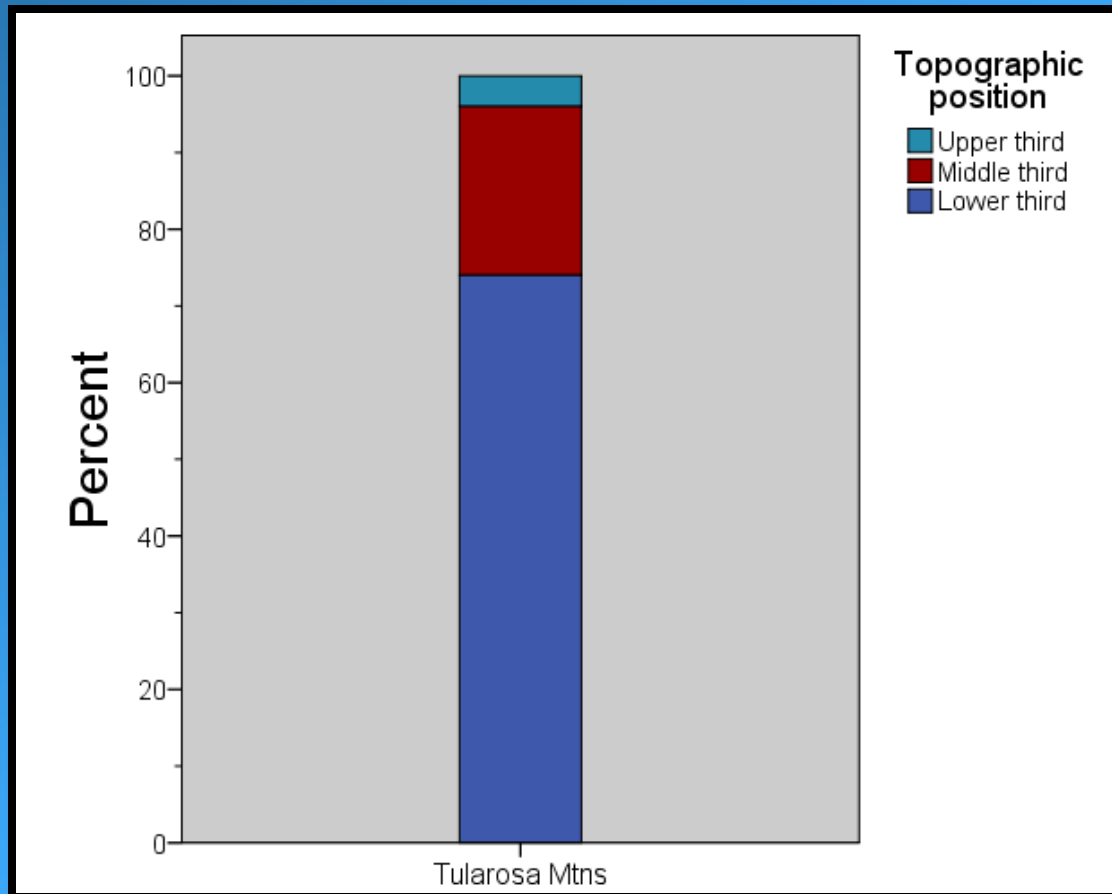
Landscape Composition – Tularosa Mtns (Peery et al. 1999)



Use of Cover Types – Tularosa Mtns. (Seamans and Gutiérrez 1995)



Topographic Position/Aspect (Seamans and Gutiérrez 1995)



- Mean aspect was northerly (336°), and differed from random
- % slope did not differ

Forest Structure – Tularosa Mountains (Seamans and Gutiérrez 1995)

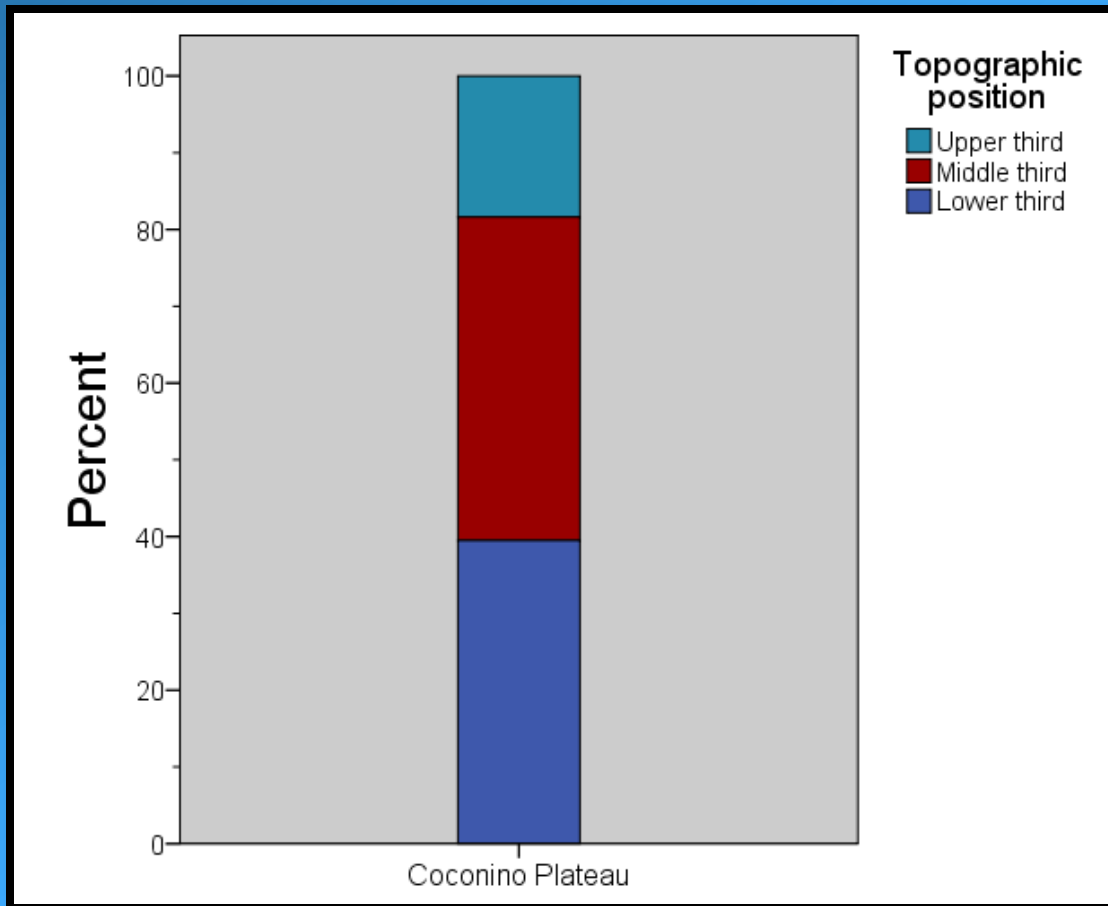
	Nest sites (n = 27)		Random sites (n = 27)	
Parameter	Mean	SD	Mean	SD
Tree height variance	2.2	1.0	1.1	1.0
Basal area > 18 in dbh	54.0	45.7	18.7	26.1
Mean tree height (m)	20.4	5.8	13.9	5.7
Canopy closure (%)	75.9	14.1	56.3	20.4
Tree dbh variance	8.3	7.0	5.8	4.5

Use of Cover Types – Coconino Plateau (May et al. 2004)

Forest type	% of study area	% of nests
Mixed-conifer	5	38.1
Pine-oak	78	61.9

Topographic position/Aspect

(May et al. 2004)



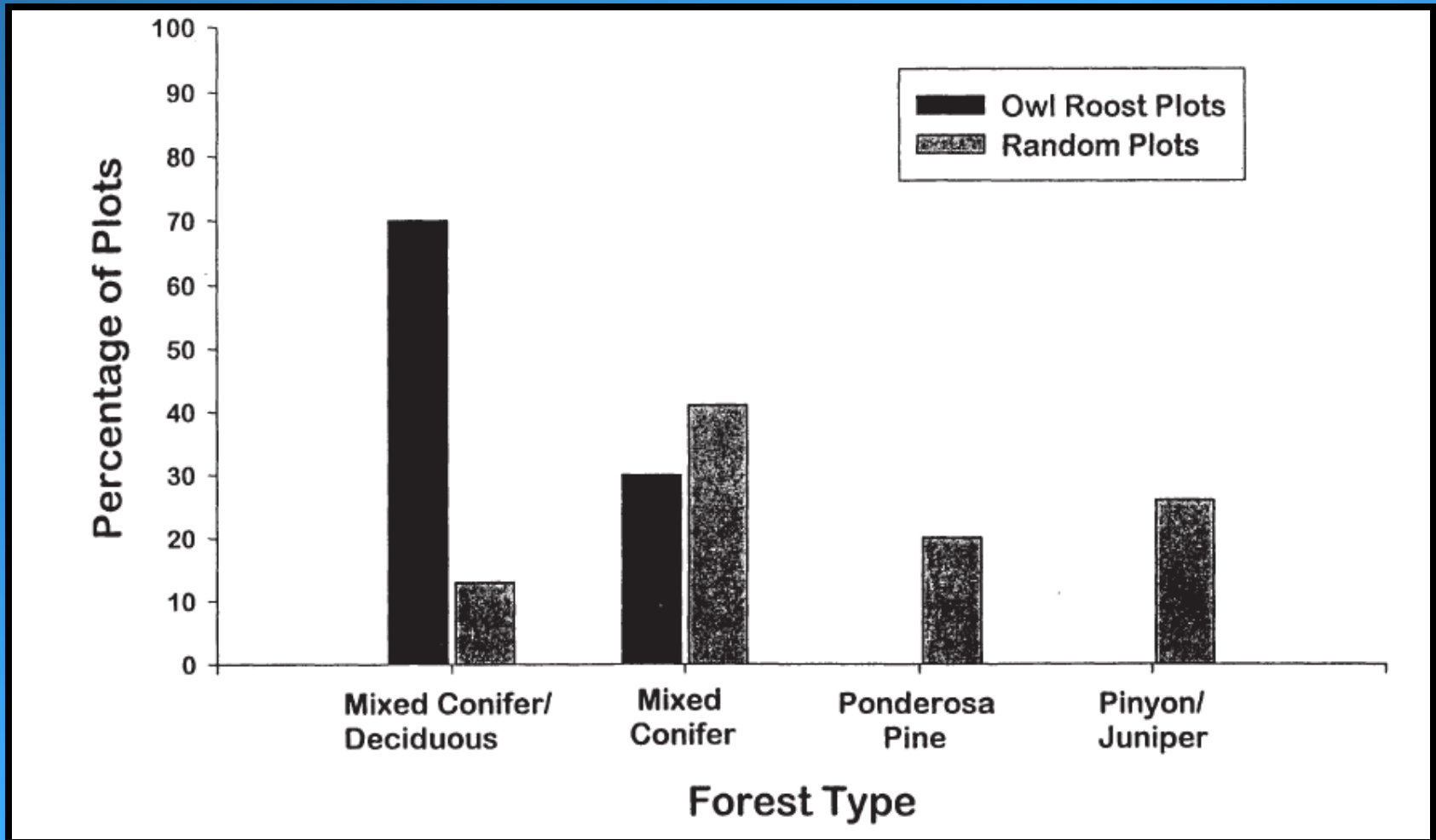
- Mean aspect was northerly (348°), but highly variable

Forest Structure - Coconino Plateau (May et al. 2004)

	Nest sites (n = 97)		Random sites (n = 110)	
Parameter	Mean	SD	Mean	SD
Slope (%)	27.6	14.3	8.7	7.9
Hardwood ba >18 in dbh	14.4	22.7	2.2	6.5
Canopy closure (%)	79.0	11.1	50.0	21.4

41% of nests were in cavities in Gambel oak

Use of Cover Types – San Mateo Mtns. (Stacey and Hodgson 1999)



Topographic Position

(Stacey and Hodgson 1999)

- 85% of roosts were in canyon bottoms
- 15% were in or adjacent to large cliffs on middle to upper third of canyon slopes

Forest Structure - San Mateo Mountains

Stacey and Hodgson 1999

Parameter	Roost (n = 64)	Random (n= 69)	Random MC (n = 36)
Basal area	85.8 ± 42.7	73.6 ± 37.5	84.5 ± 38.8
QUGA basal area	24.0 ± 20.5	4.8 ± 8.7	6.1 ± 10.5
Canopy closure (%)	59.2 ± 17.2	42.6 ± 20.1	51.9 ± 18.7

Primary Characteristics of owl habitat in dry MC forests

- Large trees
- High canopy closure/ layering
- **Hardwoods!!**
- Size - class diversity
- Lower slopes



Why Large trees?



- Nest sites
- Prey den/
nest sites
- Food for
prey

Why High Canopy Closure/Layering ?

- Microclimate/
shade?
- Hiding cover?
- Habitat
partitioning?
- Or does it come
with large trees?



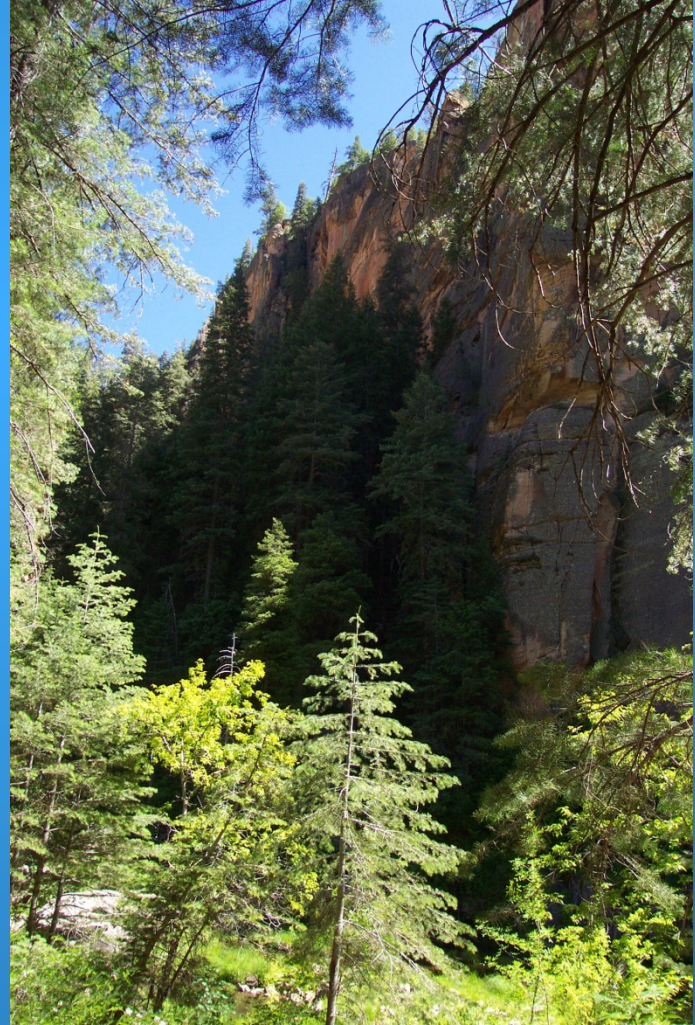
Why Hardwoods?



- Nest sites
- Food source for prey
- Hiding cover
- Canopy layering/
microclimate

Why Steep Slopes/ Lower Slopes/ North Aspects?

- Management history
- Microclimate
- Site potential/
Forest structure



Cross Section

Walnut Canyon Nest Site

7100



6600



ponderosa pine

mixed conifer

nest

riparian

← N



