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Introduction

- Non-native saltcedar (*Tamarix* spp.) has invaded many riparian areas, and is the third most abundant tree in the SW United States. (Friedman et al. 2005)
- Furthermore, it has altered natural habitat structure.
- Herpetofauna utilize these riparian areas and are often good indicators of environmental stress.
- Lizard populations respond to structural changes in their environment. (Pianka 1967)

Objectives

- We studied populations of the common side-blotched lizard (*Uta stansburiana*) (**Figure 1**) in habitat composed of native and non-native vegetation.
- We hypothesized that:
 1. Population parameters such as body condition, abundance and recapture rate vary among vegetation type.
 2. Lizards utilize microhabitat along the riparian corridor non-randomly and habitat use varies among vegetation type.



Figure 1: From left to right; hatchling *Uta stansburiana* and adult female.

Methods

Study Region

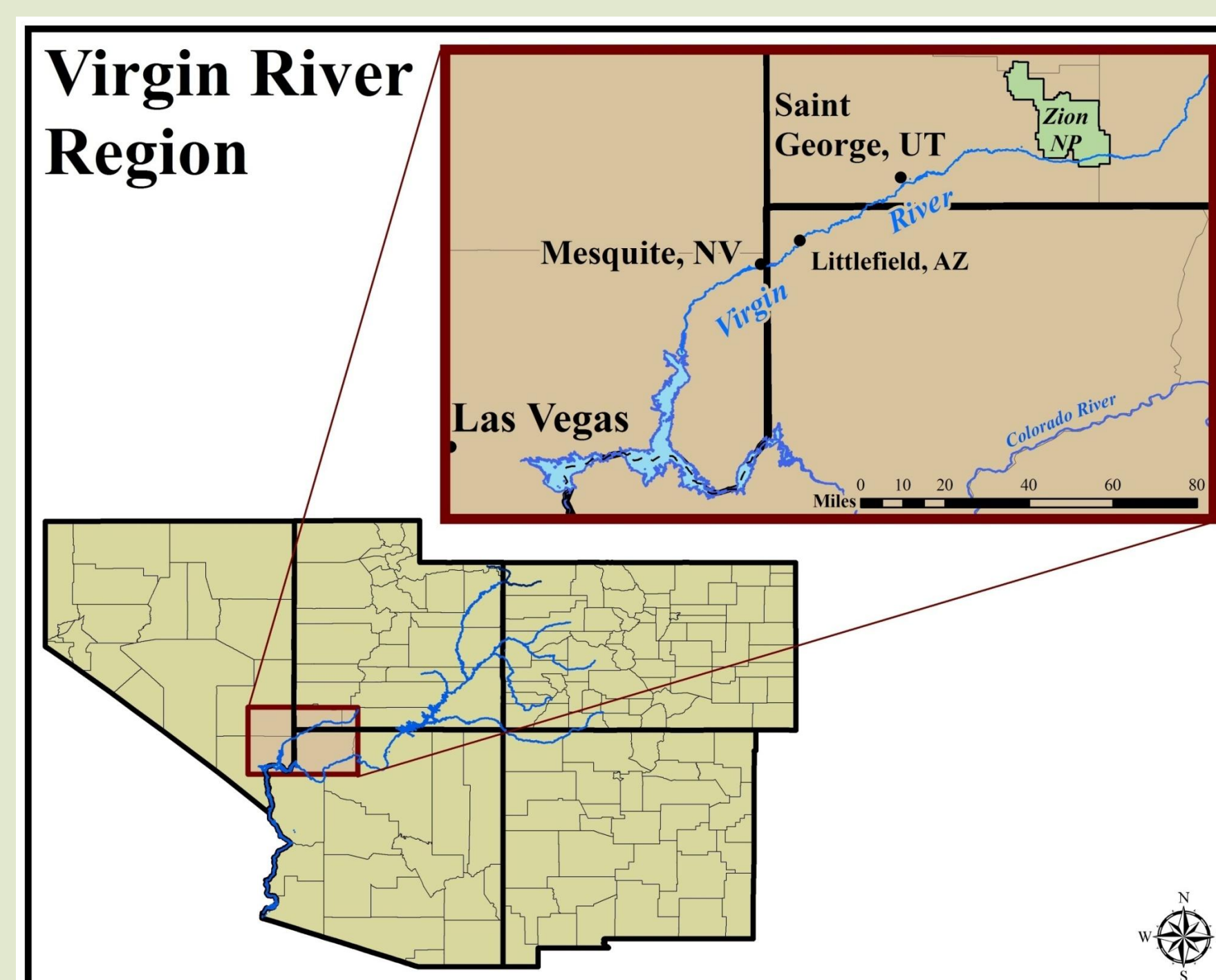


Figure 2: Study area on the lower Virgin River. Ten study sites were established. Five in native mix vegetation of Cottonwood (*Populus fremontii*), Willow (*Salix* spp.), Mesquite (*Prosopis* spp.) and saltcedar. Five were in monotypic saltcedar stands. Map produced by Dan Bean of the Tamarisk Coalition.

Methods cont'd

Study Sites

- Established 10 study sites on the Virgin River from Littlefield, Arizona to Gold Butte, Nevada. Roughly 45 kilometers in length. (**Figures 2 and 3**)

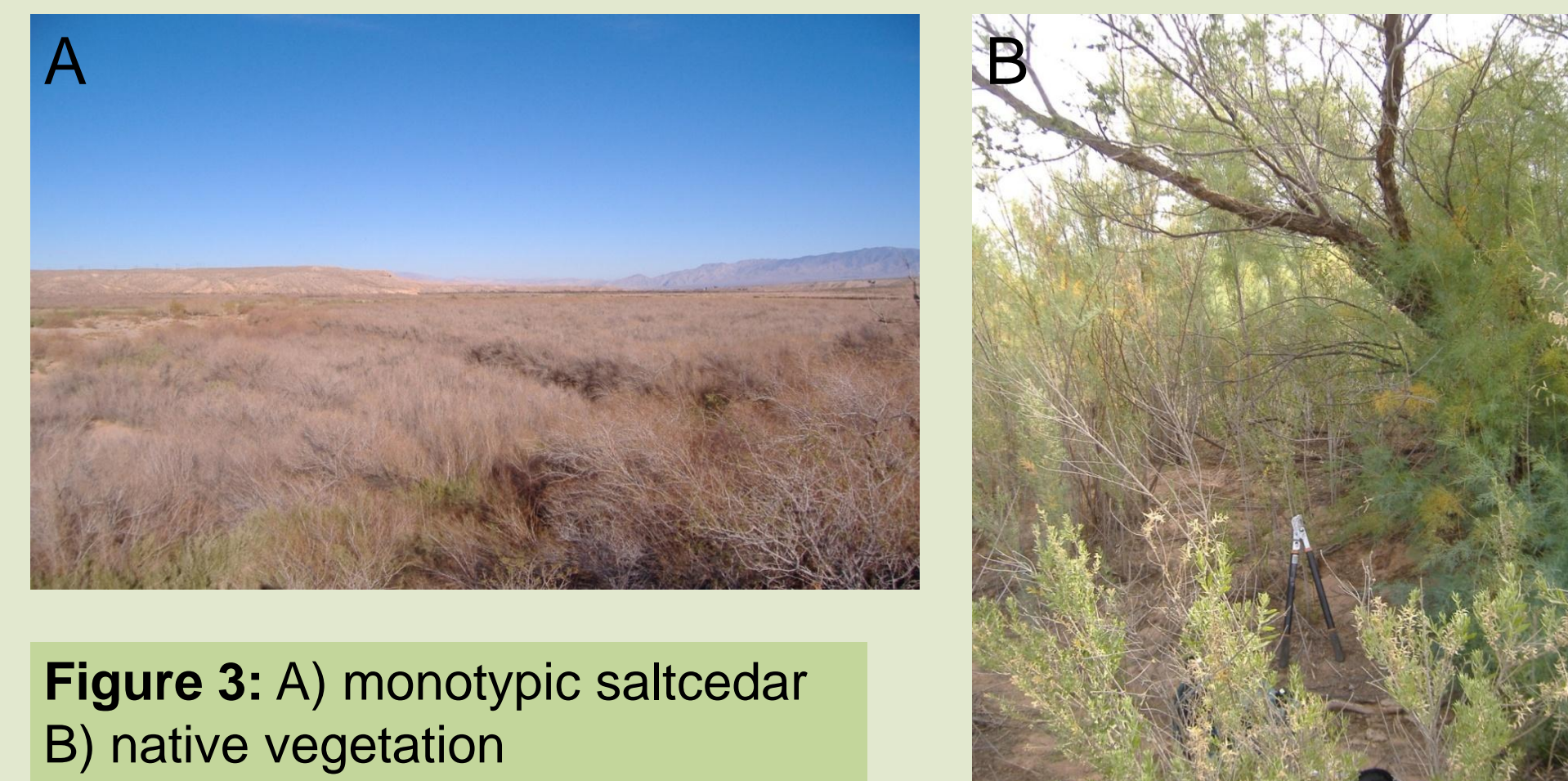


Figure 3: A) monotypic saltcedar B) native vegetation

Lizard Sampling

- We captured, marked, measured and released lizards using pitfall and funnel trap arrays from June to August in 2009 and 2010.
- We related hatchling body condition (body mass/body length) and abundance with microhabitat variables.

Lizard Microhabitat Selection

- Visual encounter surveys (VES) were conducted to locate lizards in both vegetation types.
- Microhabitat was measured where lizards were located and at random points (controls) generated by a GIS.
- Nine microhabitat variables included: canopy cover (0-50%, 50-75%, >75%), understory (0-50%, >50%), substrate (litter, soil, woody debris), refuge (vegetation, woody debris, burrow), distance to refuge (<1m, 1-2m, >2m), distance to open (does point lie within an open or closed patch), nearest shrub (0-1m, >1m), type of shrub (native, non-native), height above ground (is the point on ground or elevated).

Results

- We captured 233 lizards (31 adults and 202 hatchlings). Adults were excluded from analysis due to few captures.
- Lizard abundance among the two vegetation types was not significantly different ($t = 0.06$, $p = 0.95$, $df = 26$). (**Figure 4**)
- Microhabitat analysis indicated that lizards select for similar structural characteristics within both native and non-native vegetation (**Table 1**).

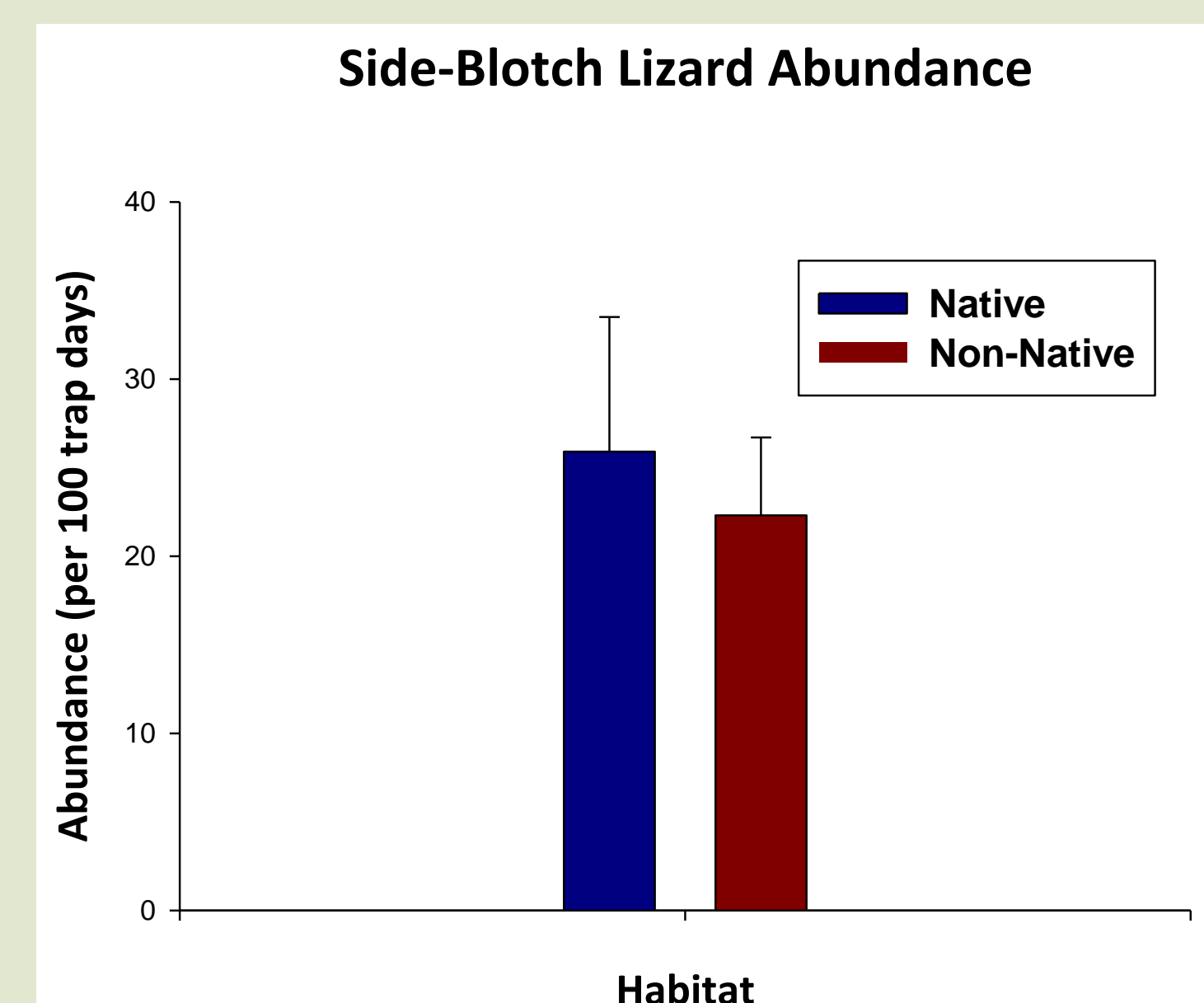


Figure 4: Abundance of lizards within native and non-native sites.

Results cont'd

Table 1: Two of nine microhabitat variables, canopy cover and understory, that illustrate lizards selection for more open habitat structure. Other variables were inconclusive.

Variable	Lizard Use	Available Habitat	Chi Square	Significant
Classes	n= 16	n= 52		
Canopy cover (df= 2)				
0-50%	43.7%	50.0%	39.69	p< 0.05
50-75%	43.7%	5.7%		
>75%	12.5%	44.2%		
Understory (df= 1)				
0-50%	93.7%	71.1%	4.655	p< 0.05
>50%	6.2%	28.8%		

- Hatchling lizard abundance was not correlated with canopy cover; however, hatchling body condition, and recapture rate were negatively correlated with canopy cover (**Figure 6 A-C**).

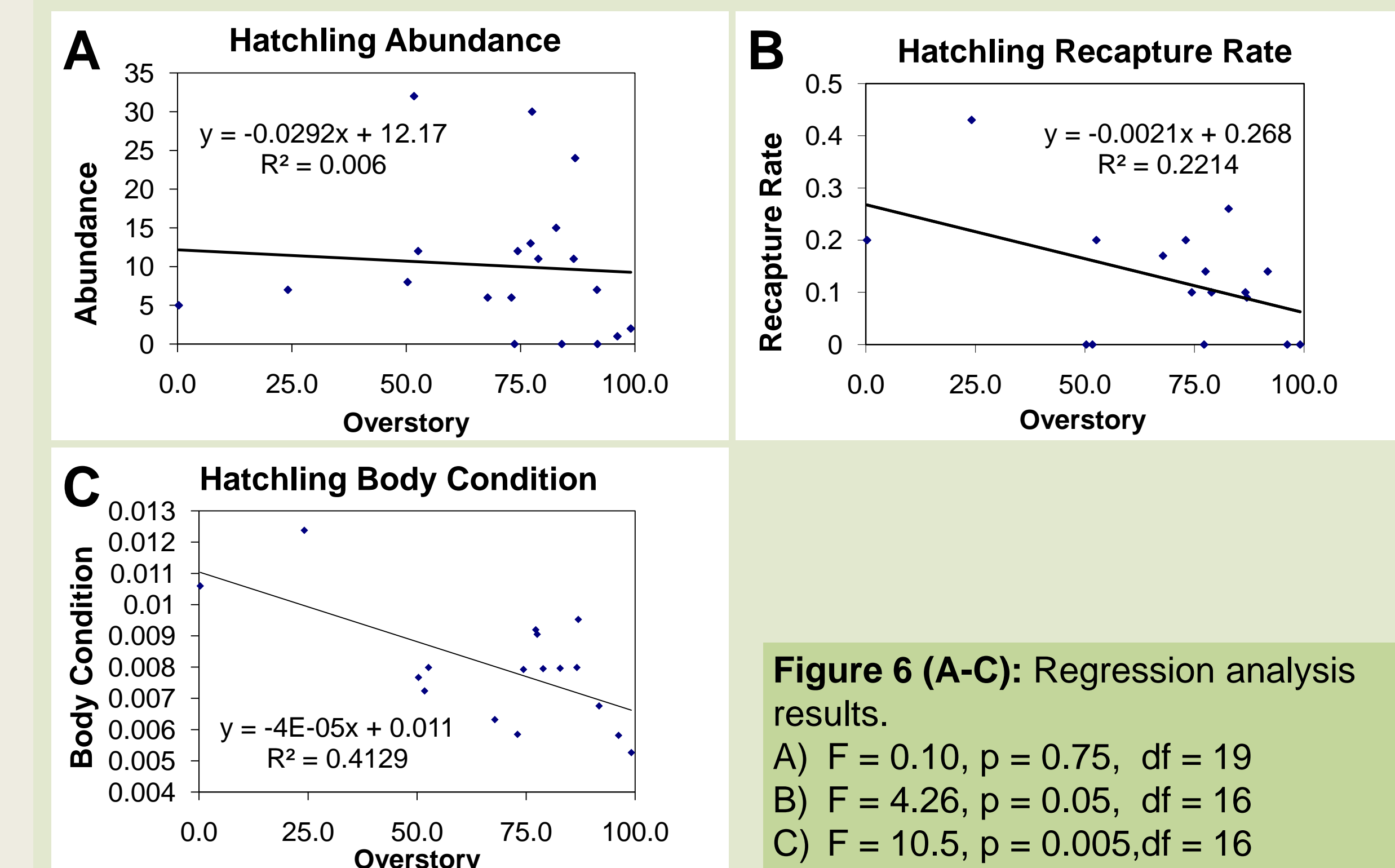


Figure 6 (A-C): Regression analysis results.
A) $F = 0.10$, $p = 0.75$, $df = 19$
B) $F = 4.26$, $p = 0.05$, $df = 16$
C) $F = 10.5$, $p = 0.005$, $df = 16$

Conclusion

- Abundance of lizards along the Virgin river riparian corridor did not significantly differ among vegetation types.
- Lizards selected habitat non-randomly and used microhabitat with similar structure independent of vegetation type (i.e. native or non-native vegetation).
- Abundance of hatchling lizards was not significantly different among vegetation types; however, recapture rate and hatchling body condition decreased with an increase in canopy cover.
- Hatchlings are present in habitat with high canopy cover, but persist in habitat with lower canopy cover because of possible benefits for thermoregulation.
- Structure of habitat, not vegetation composition, may be an important indicator of habitat quality for common side blotch lizards within riparian habitat.

Literature Cited and Acknowledgements

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- Pianka, E.R. 1967. On lizard species diversity: North American flatland deserts. *Ecology* 48:334-351.
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