

Diets of Willow Flycatchers
in Different Desert-Riparian Habitats

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Objectives – 1) Compare diets (arthropods, spiders and insects) of breeding Willow Flycatchers among different plant communities

2) Compare diets with abundances of spiders and insects

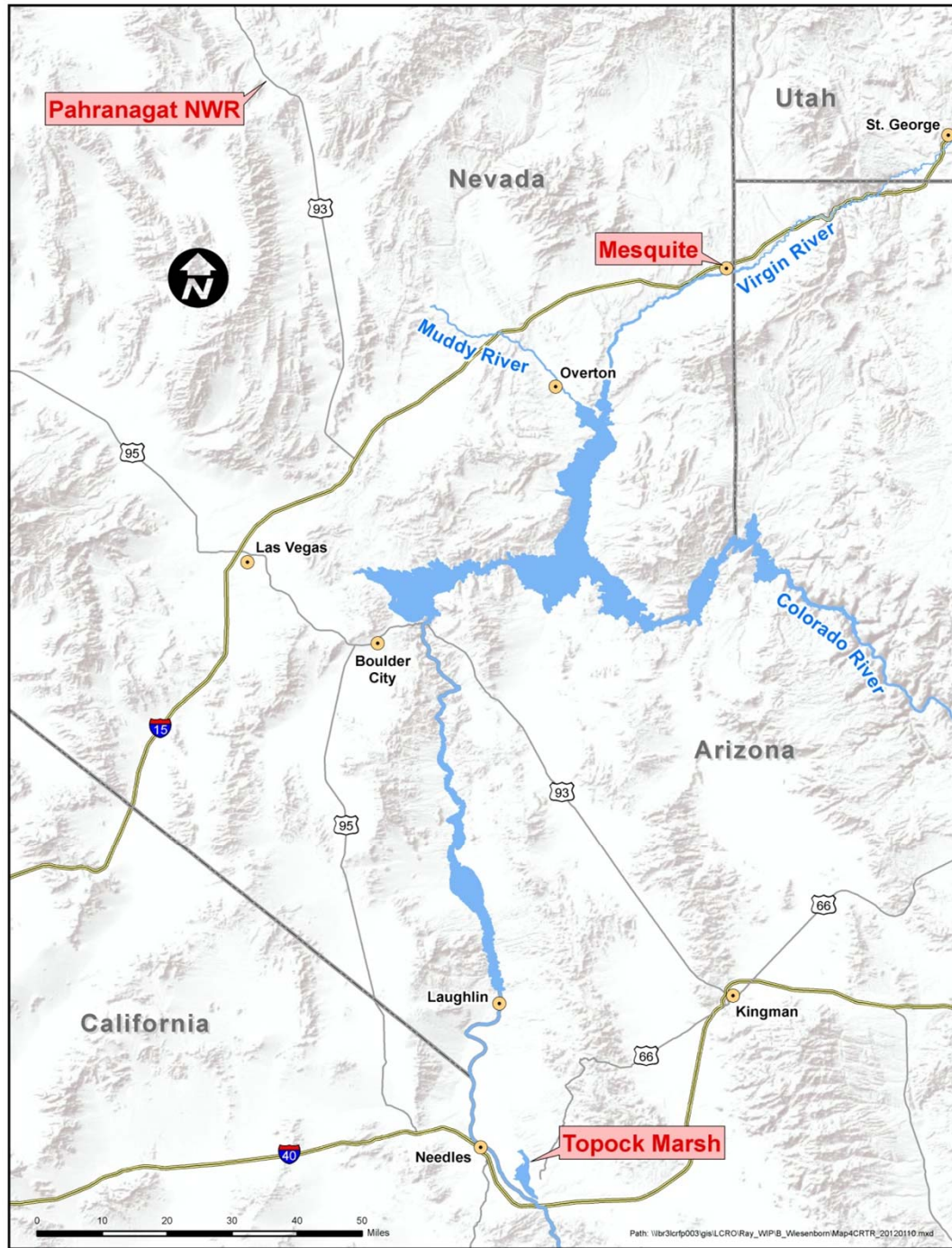
Methods – 1) Spiders and insects in fecal samples from 56 birds, caught during mist-netting in May – July 2004, were identified and counted

2) Spiders and insects in the field were collected 5 times concurrent with mist-netting

– swept from foliage and flowers on dominant plants

– captured in Malaise traps during periods of 7-8 days

3) Regressions were used to compare diets with abundances in sweeps and traps



Pahranagat NWR



Pahranagat NWR

1 trap in
Salix gooddingii

1 trap in
Populus fremontii

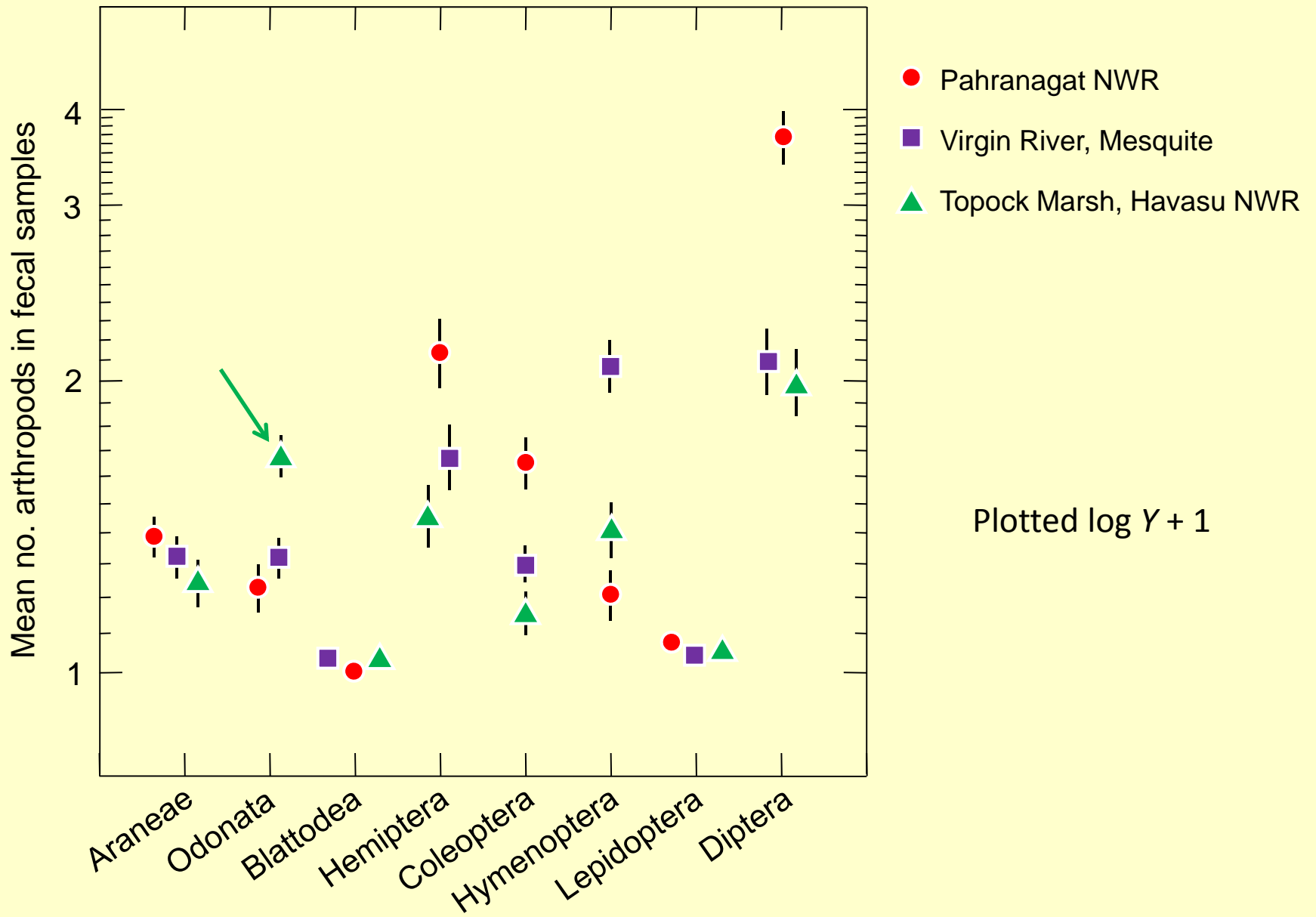


Virgin River, Mesquite – 1 trap in *Salix exigua* & *Tamarix ramosissima*



Topock Marsh, Havasu NWR – 1 trap in *Tamarix ramosissima*





Regressions of arthropod abundances in orders in fecal samples against sweep and trap collections.

R^2 = proportion of variation in Y explained by X.

| | | <u>R^2</u> |
|--|-------|-------------------------|
| Pahrnagat NWR | | |
| <i>Salix gooddingii</i> | sweep | 0.37 |
| | trap | 0.24 |
| <i>Populus fremontii</i> | sweep | 0.21 |
| | trap | 0.025 |
| multiple regression | | |
| <i>Salix gooddingii</i> | sweep | 0.38 |
| <i>Populus fremontii</i> | trap | <u>0.028</u> |
| | | 0.40 |
| Virgin River, Mesquite | | |
| <i>Salix exigua</i> | sweep | 0.20 |
| <i>Tamarix ramosissima</i> | sweep | 0.15 |
| <i>S. exigua</i> & <i>T. ramosissima</i> | trap | 0.12 |
| Topock Marsh | | |
| <i>T. ramosissima</i> | sweep | 0.11 |
| <i>T. ramosissima</i> | trap | 0.083 |

Pahranagat NWR

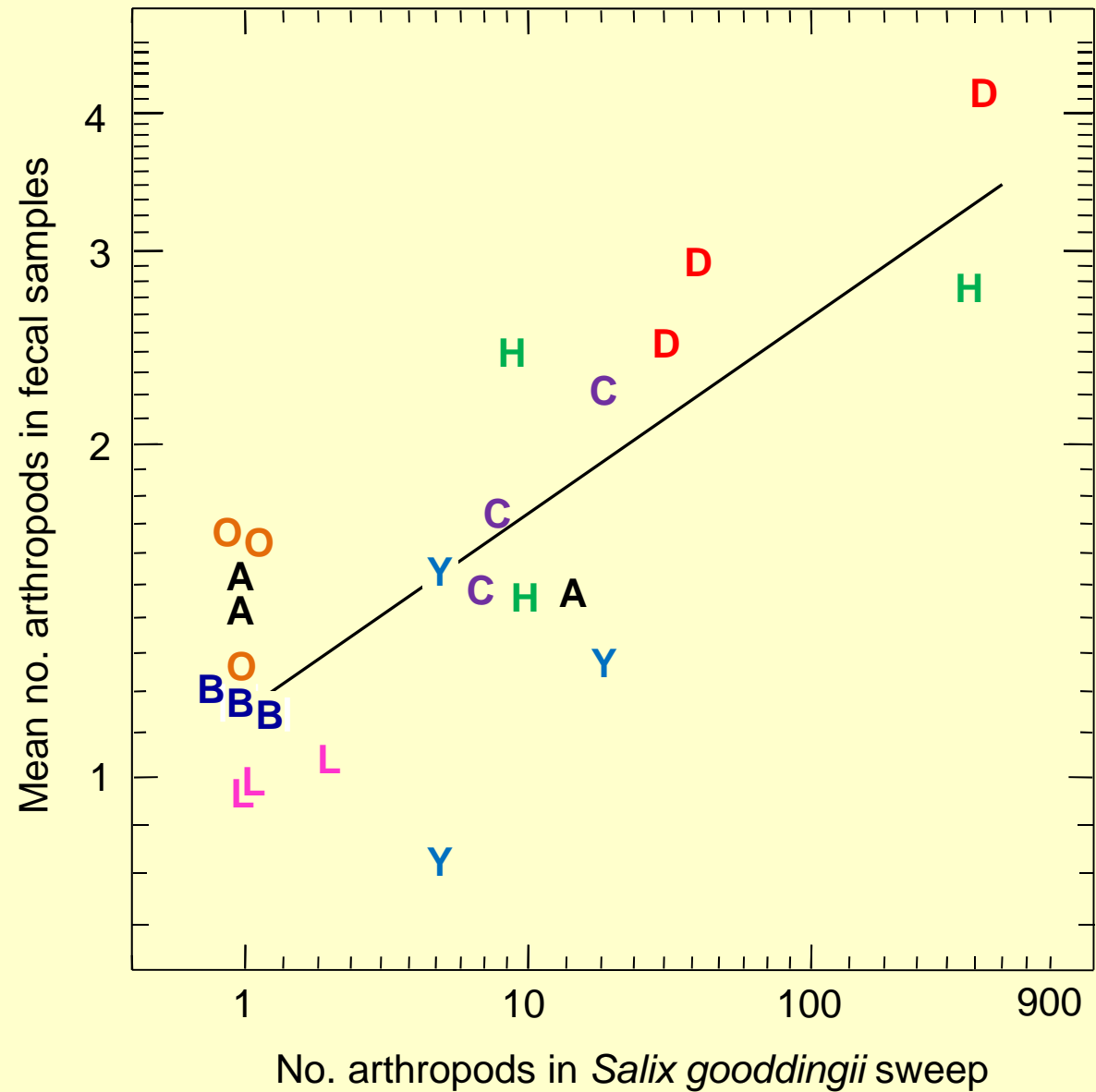
3 collection periods
with fecal samples

Plotted $\log X + 1$
 $\log Y + 1$

Y adjusted for
Populus fremontii
trap

Partial $R^2 = 0.38$

Orders abbreviated by
first letter except
Y = Hymenoptera



Pahrnagat NWR

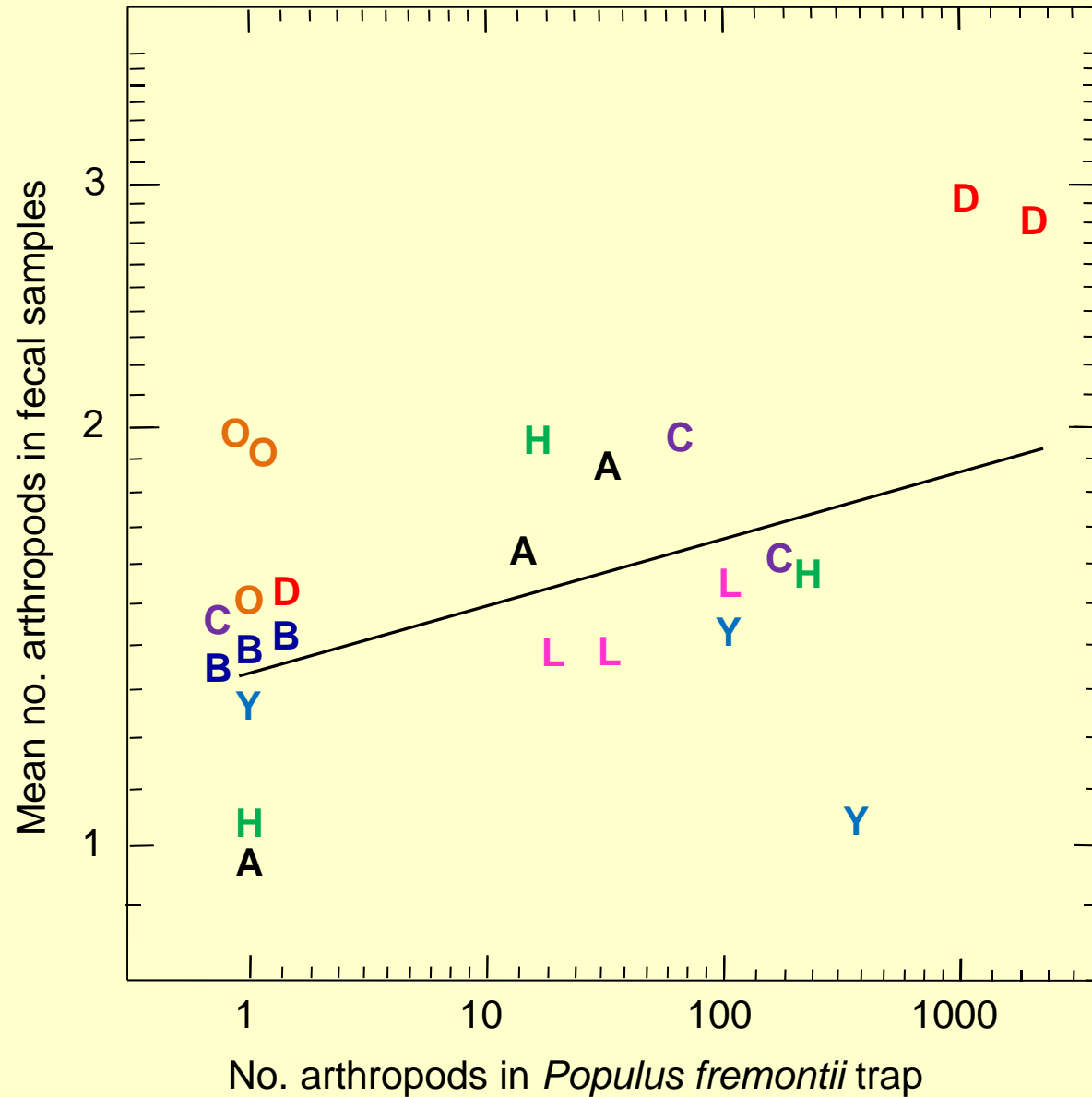
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| Best, significant multiple regression | | |
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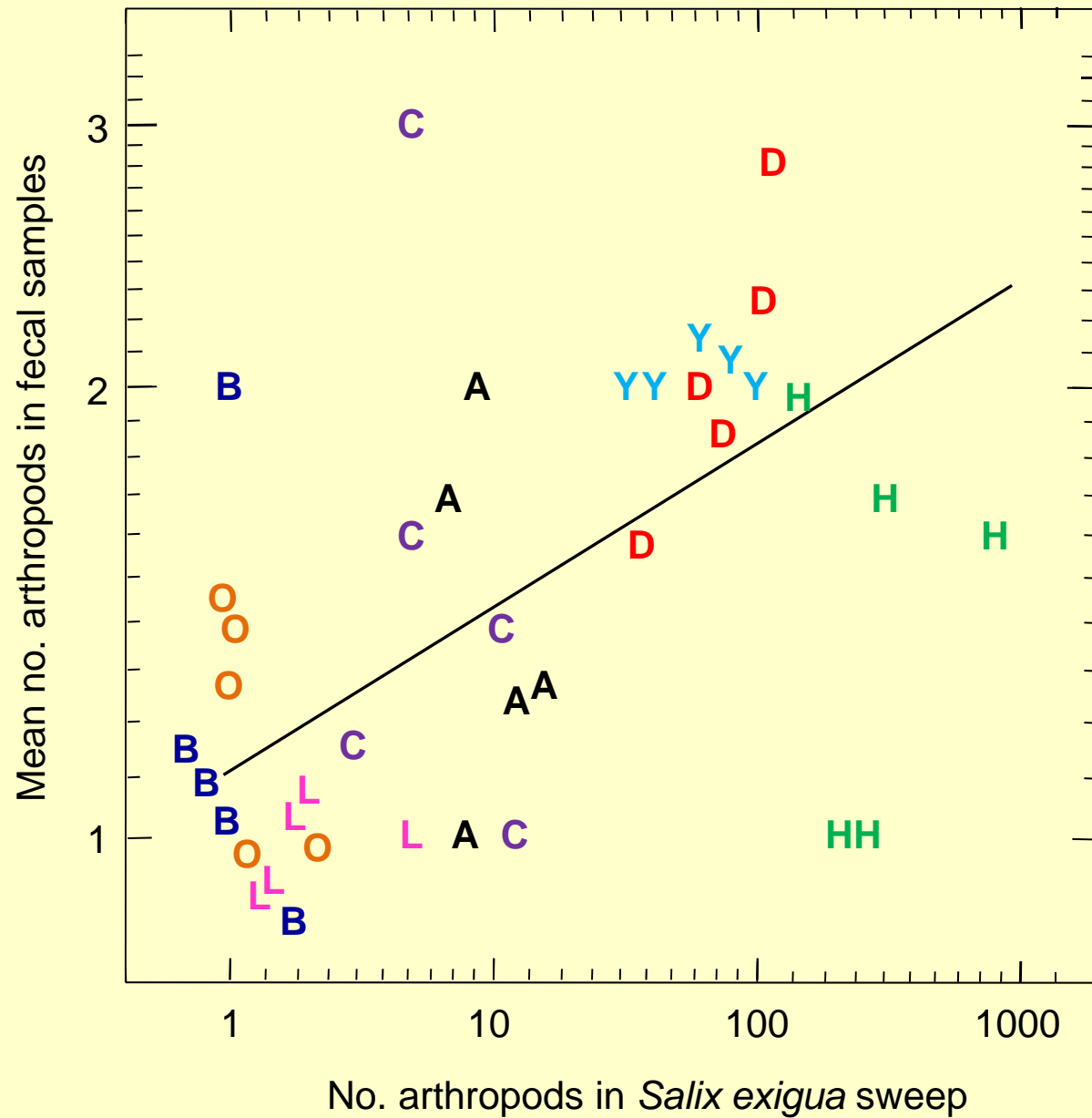
Virgin River, Mesquite

5 collection periods
with fecal samples

Plotted $\log X + 1$
 $\log Y + 1$

$R^2 = 0.20$

Orders abbreviated by
first letter except
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Regressions of arthropod abundances in orders in fecal samples against sweep and trap collections.

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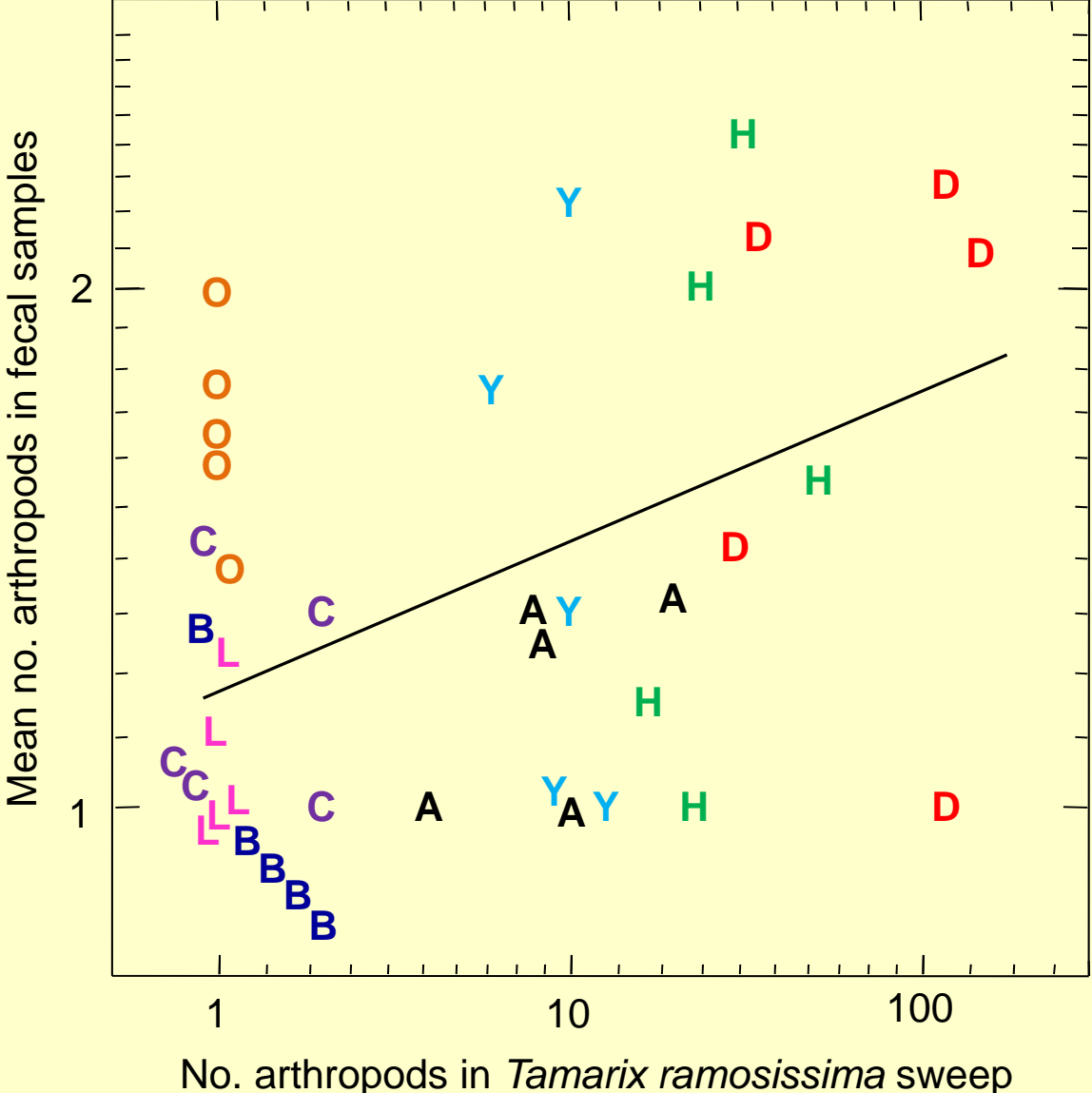
Topock Marsh

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Summary

- 1) flycatchers ate a diversity of spiders and insects
 - 32 families in 8 orders including cockroaches
 - smallest = the syrphid fly *Syrirta pipiens*, largest = dragonflies

- 2) diets at all 3 sites more-closely matched arthropod abundances swept from plants than caught in traps

- 3) correspondence between diet and arthropod abundances on plants was
 - greatest at Pahrangat where plants were mostly natives
 - intermediate at Virgin River where native plants were mixed with *T. ramosissima*
 - least at Topock Marsh where *T. ramosissima* dominated

Conclusions

Compared with other sites, flycatchers at Topock Marsh were relying on insects other than those on the dominant vegetation (*T. ramosissima*) such as dragonflies and other aquatic insects developing in Topock Marsh.

Many of these marsh insects feed on tamarisk flowers as adults.

Planted riparian areas should be located next to marshes, such as at Beal Lake, to increase the abundance and diversity of insects as prey for flycatchers and other birds.