

Primary Function and Value Impacts

- Food chain support
- Wildlife foraging, roosting and nesting habitat
- Wetland vegetation (as habitat)



Measuring Mitigation Success

- Vegetation
- Water and Soil Chemistry
- Macroinvertebrate
- Habitat Evaluation Procedures: American Avocet, Migratory Shorebird, Cinnamon Teal
- Mean annual waterbird nesting/staging increase









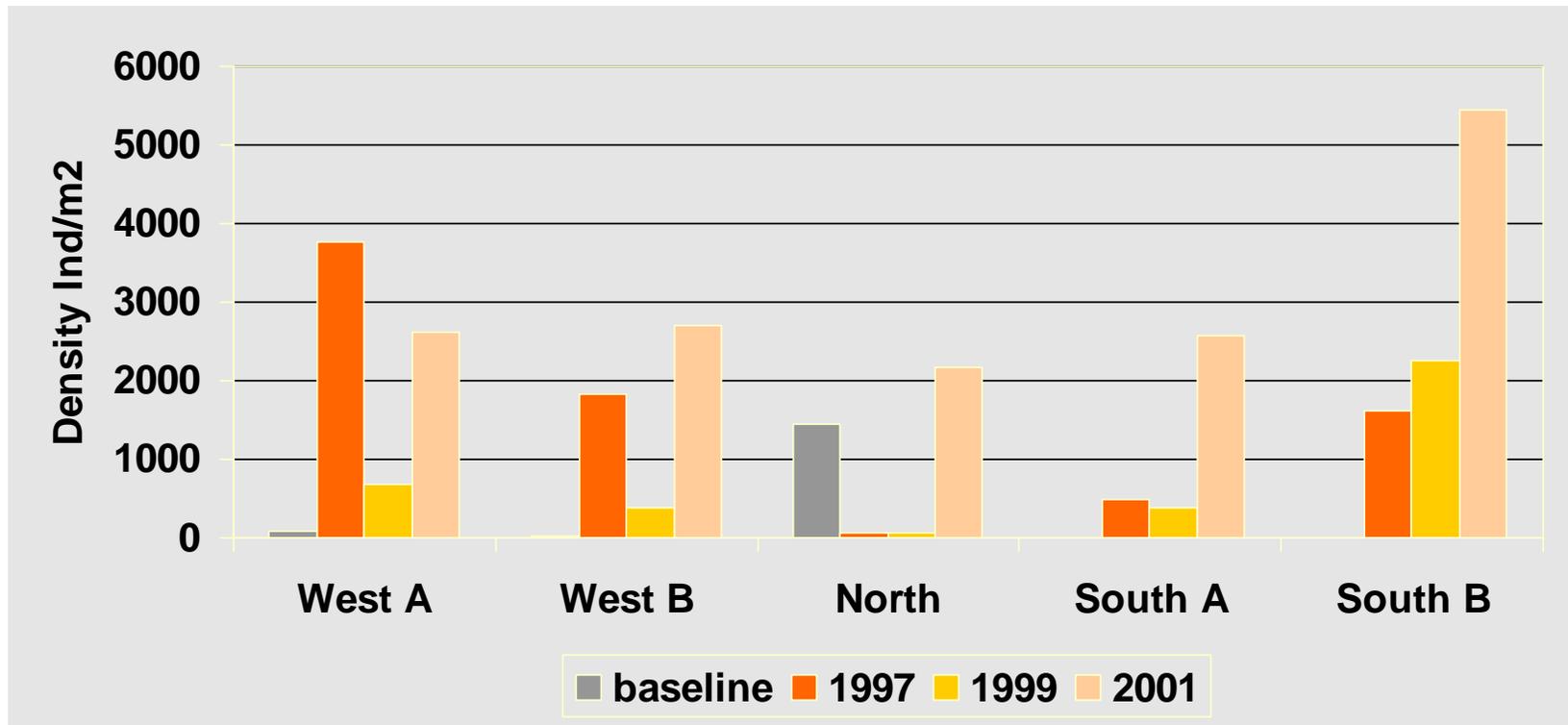
Vegetation on shoreline releve plots at the ISSR ponds, 1995-2001

<u>Type</u>	<u>Results</u>
Shrubs	Fewer shrubs, some invasive
Grasses	Fewer grasses, some species shift, some invasive
Herbs	Fewer herbs, some species shift
Aquatics	More aquatics

Total and Dissolved Metals sampled for EPA Freshwater life acute and chronic levels - Sampled Jan, Apr, Jul, Oct

Al	Hardness from Ca-Mg (mg/L CaCO₃)
As	Alkalinity (mg/L CaCO₃)
Cd	TDS (mg/L)
Cu	TSS (mg/L)
Fe	General Water Parameters Sampled Weekly
Pb	pH
Hg	Temperature C°
Se	Conductivity (µmhos/cm)
Zn	DO

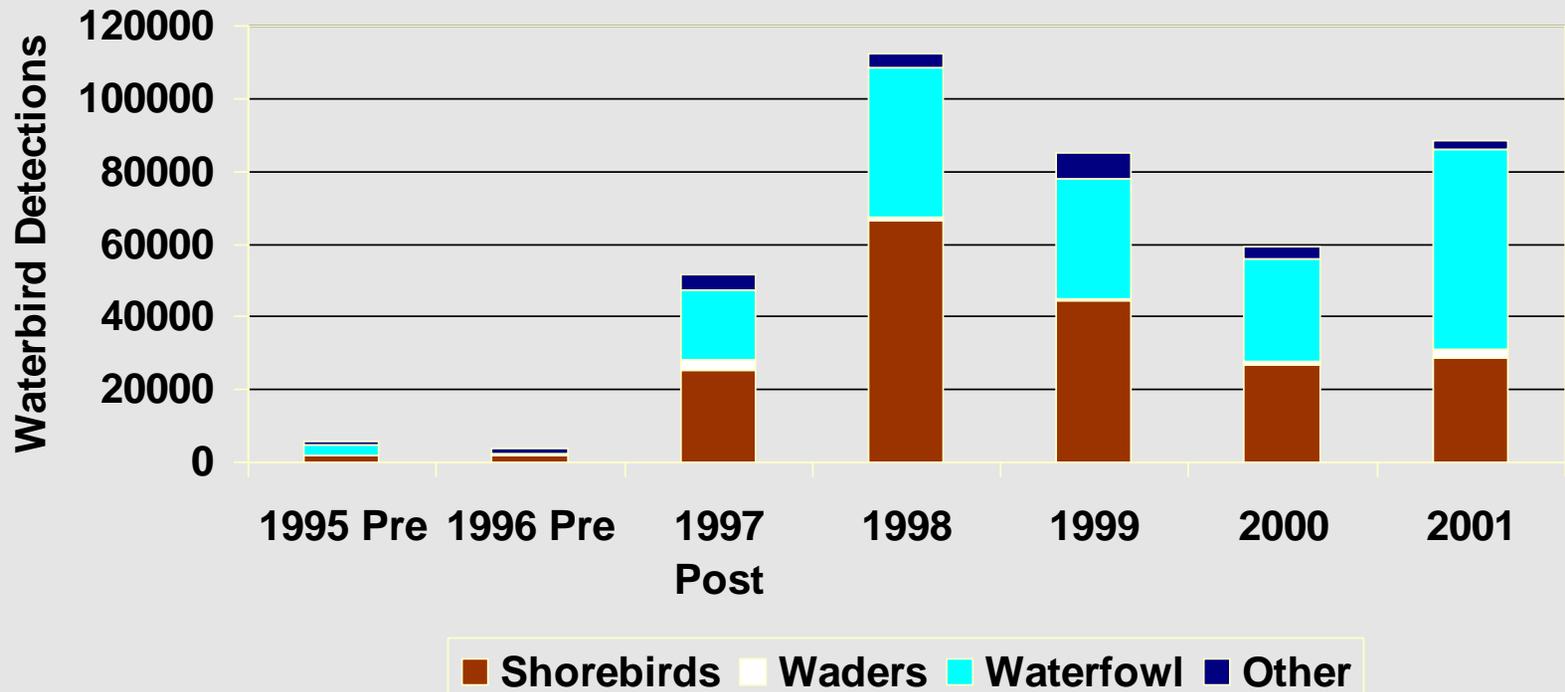
Mean Chironomid Density



Index to True Bird Abundance
(Number of Detections in June Only)

Model	Baseline (1995-6 mean)	Enhanced (1998-2001 mean)	Factor Increase
Migratory Shorebird	235	2278	9.69
Nesting Avocet	102	5971	58.54
Nesting Cinnamon Teal	11	254	23.00
TOTAL	348	8503	24.43

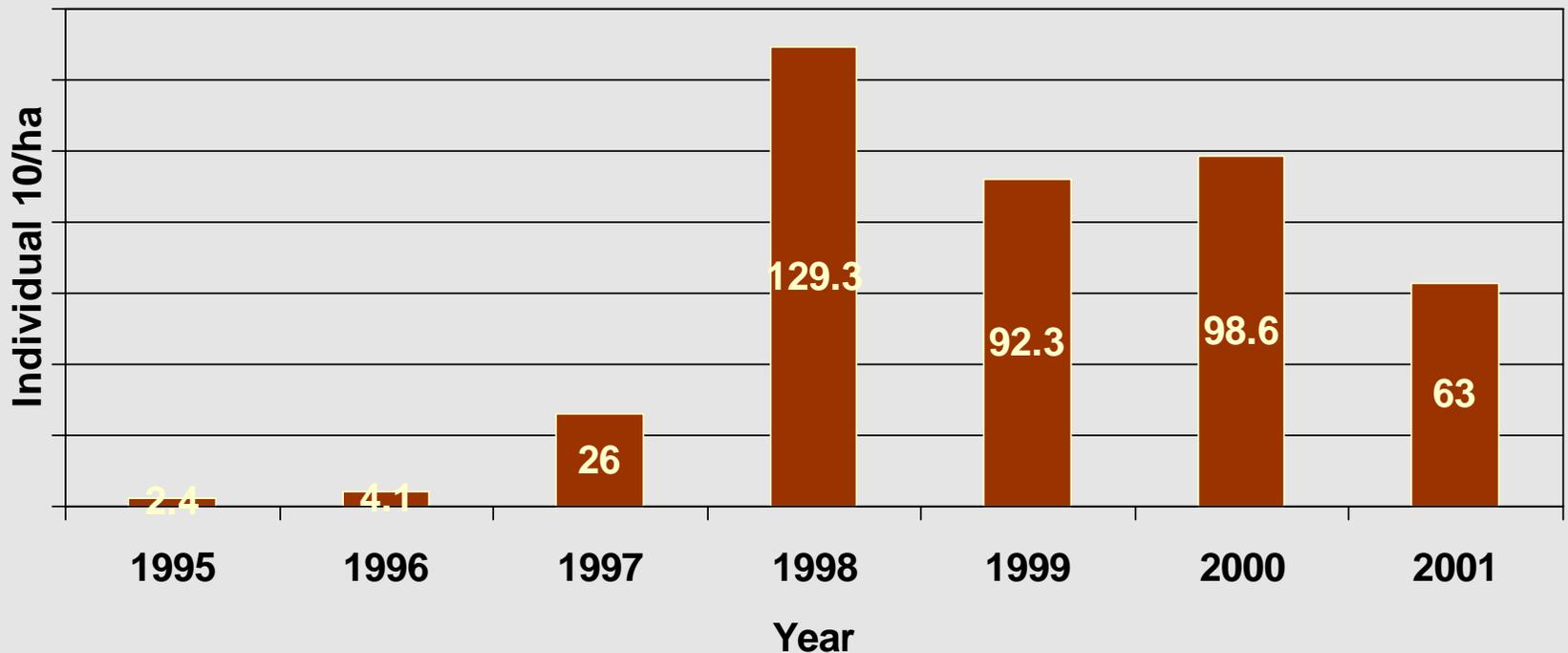
ISSR Waterbird Surveys



RESEARCH



American Avocet densities during the breeding season (mid-April to mid-July)

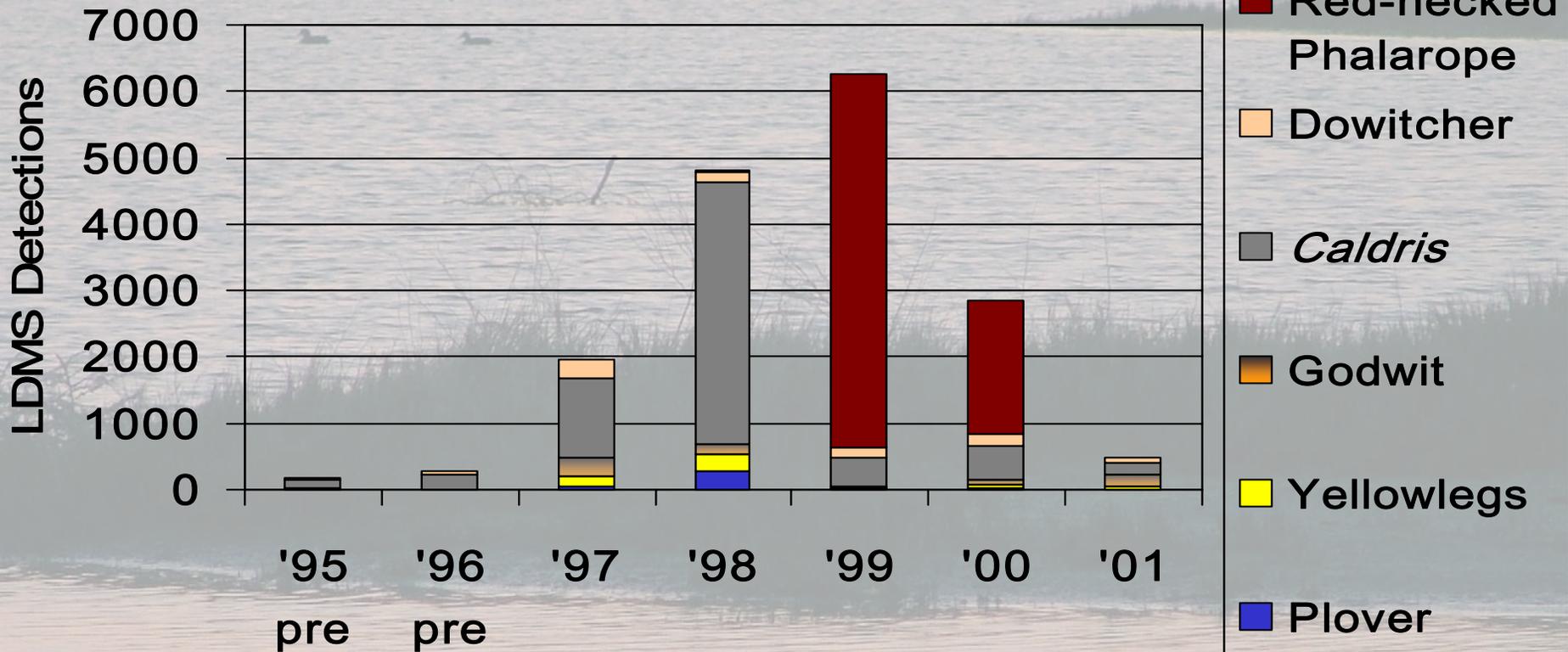


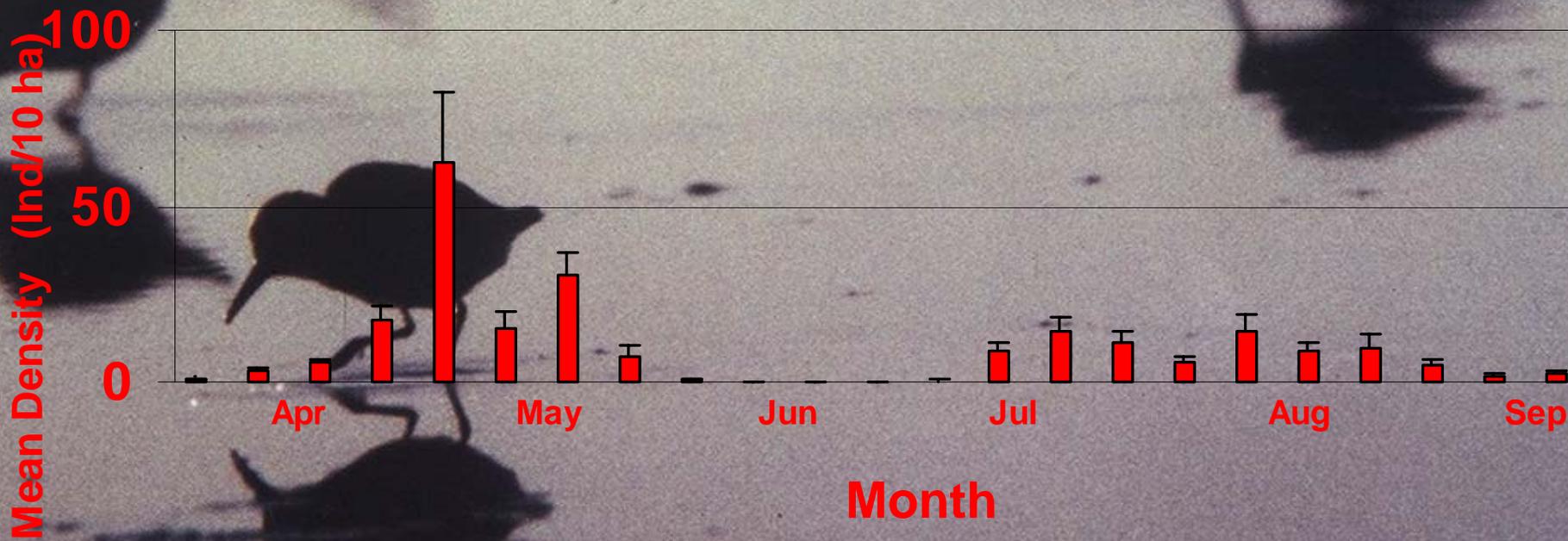
OBJECTIVES

- **Summarize relative abundance**
- **Species composition**
- **Migration chronology**
- **Document mitigation management influence (pre and post enhancement)**

ISSR LDMS

Apr-Sept 1995-2001





Conclusions

- **Mitigation increased LDMS density**
- **Migration density peaked in late April early May**
- **LDMS density was not correlated to climatic conditions**
- **Good management requires natural history information**

OBJECTIVES

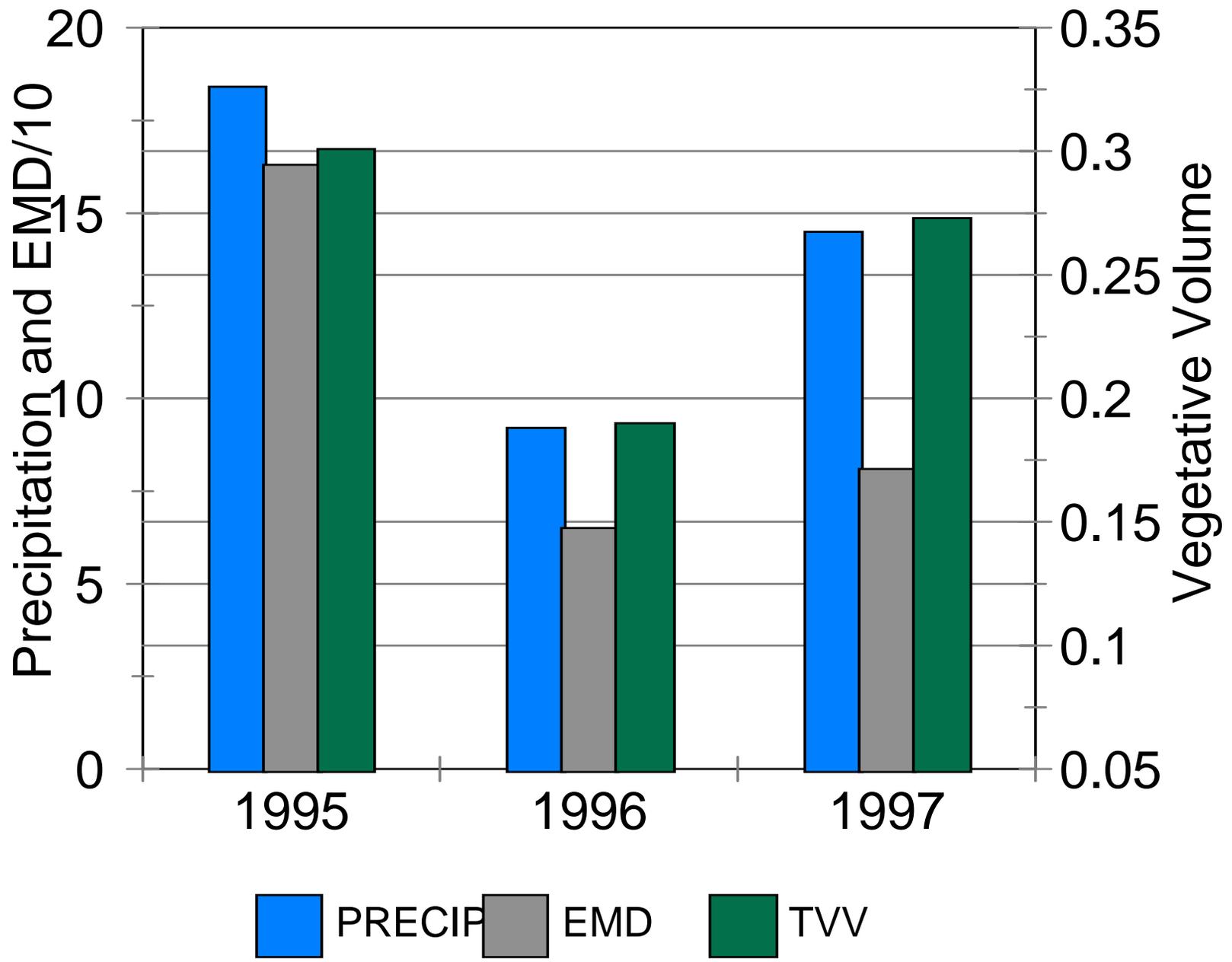
- Avian community composition and density
- Between-year variances
- Any correlation with primary environmental factors

Diversity

- 40 Species and 28 species nesting
- Brewer's Sparrow, Western Meadowlark, Sage Thrasher, Brown-headed Cowbird

Estimated Mean Density

	1995		1996		1997	
	SH1	SH2	SH1	SH2	SH1	SH2
All spp	158	169	53	76	61	106
Nest spp	151	165	53	74	61	78
Nest Duck	3	2	1	1	3	1
Nest Shore	26	38	1	2	5	3
Nest Pass.	113	117	46	66	51	64



Other Studies

- Shrew study – BYU
- Weed mapping (masters thesis U of MT)
- DWQ – aquatics and WQ
- UDOT – noise
- FWS/Weber – SNPL
- FWS/Weber – Fecundity
- DWR – GSL waterbird counts
- Intern – Add salt to control weeds, predator assessment, plant book, weed treatments (thistle and knapweed),
- Biocontrol – tamarisk
- Weed treatments – DBI testing effectiveness of different weed treatments on tamarisk



SHORELINE PROTECTION



PRESENCE

ACCESS for EDUCATION

