MARSHBIRDS OF COLORADO RIVER DELTA

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Reserva de la Biosfera
ALTO GOLFO DE CALIFORNIA
Y DELTA DEL RÍO COLORADO

The WALTON FAMILY FOUNDATION

CONANP: Eduardo Soto
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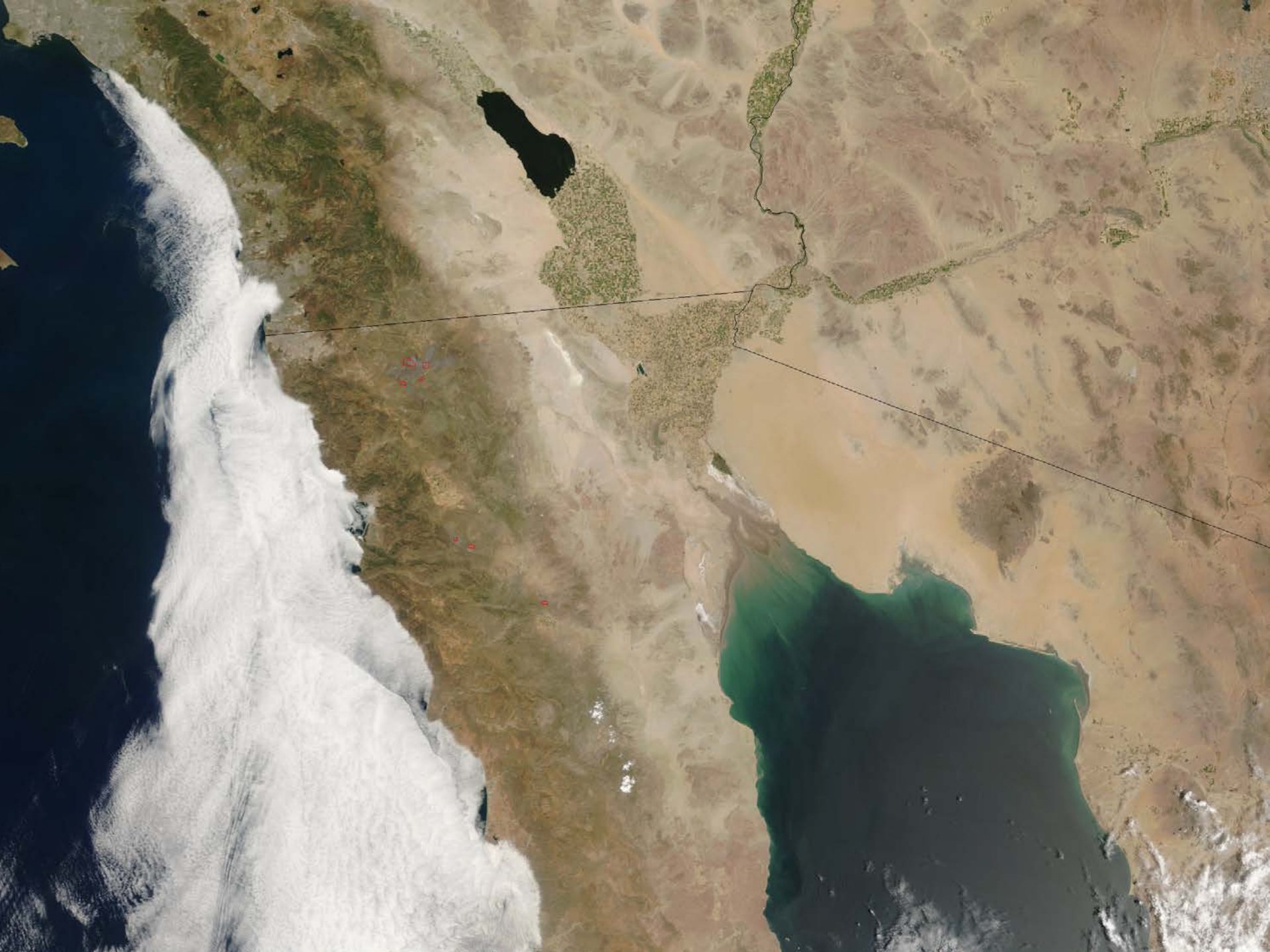
U.S. FISH & WILDLIFE SERVICE

CEDES
COMISIÓN DE ECOLOGÍA Y DESARROLLO SUSTENTABLE DEL ESTADO DE SONORA

CEDES: Martha Román

SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES | SEMARNAT



Mesa de Andrade Wetlands

Colorado River Delta in México

- **Only 10% of the original wetlands remain**
- **River does not reach the sea except during extremely wet years and spring tides.**
- **Still home for endangered and economically valuable species.**

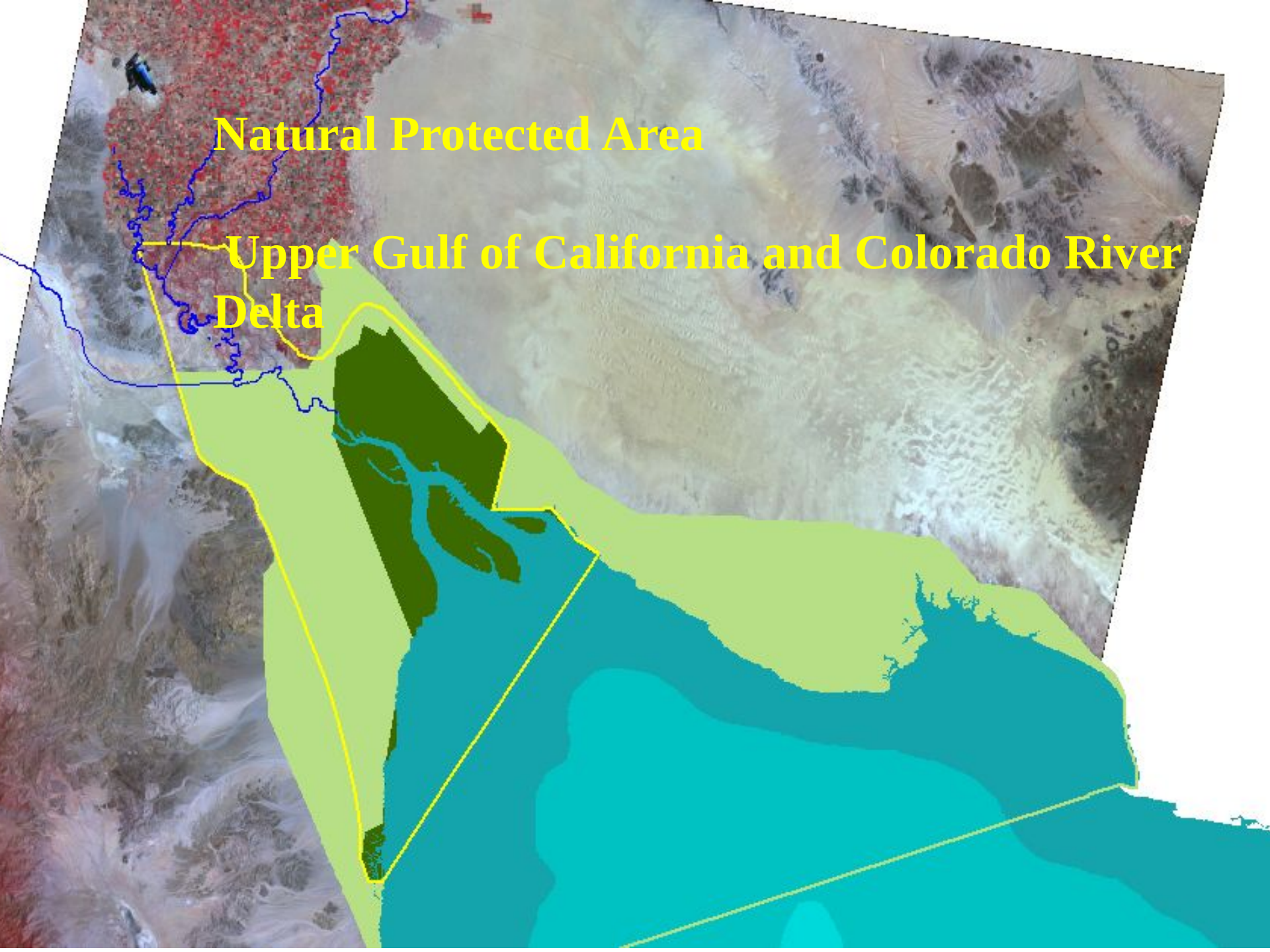
Ramsar Site

UN Man and the Biosphere

Site in the Western Hemisphere Shorebirds Reserves Network

International Important Bird Area (IBA)

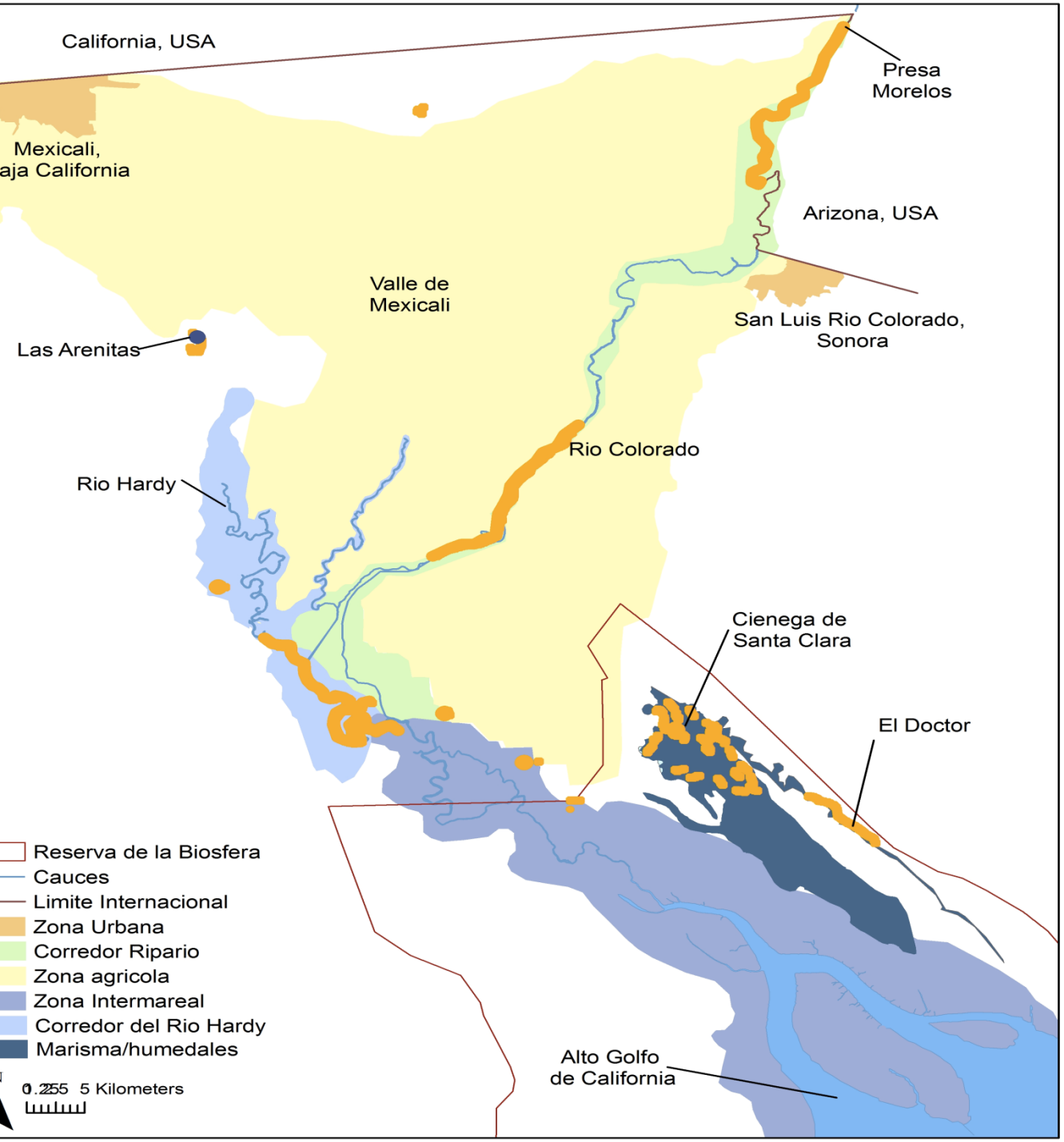
NAWCA Priority Wetland


Natural Protected Area
Upper Gulf of California and Colorado River Delta

Fotografía: Francisco Zamora

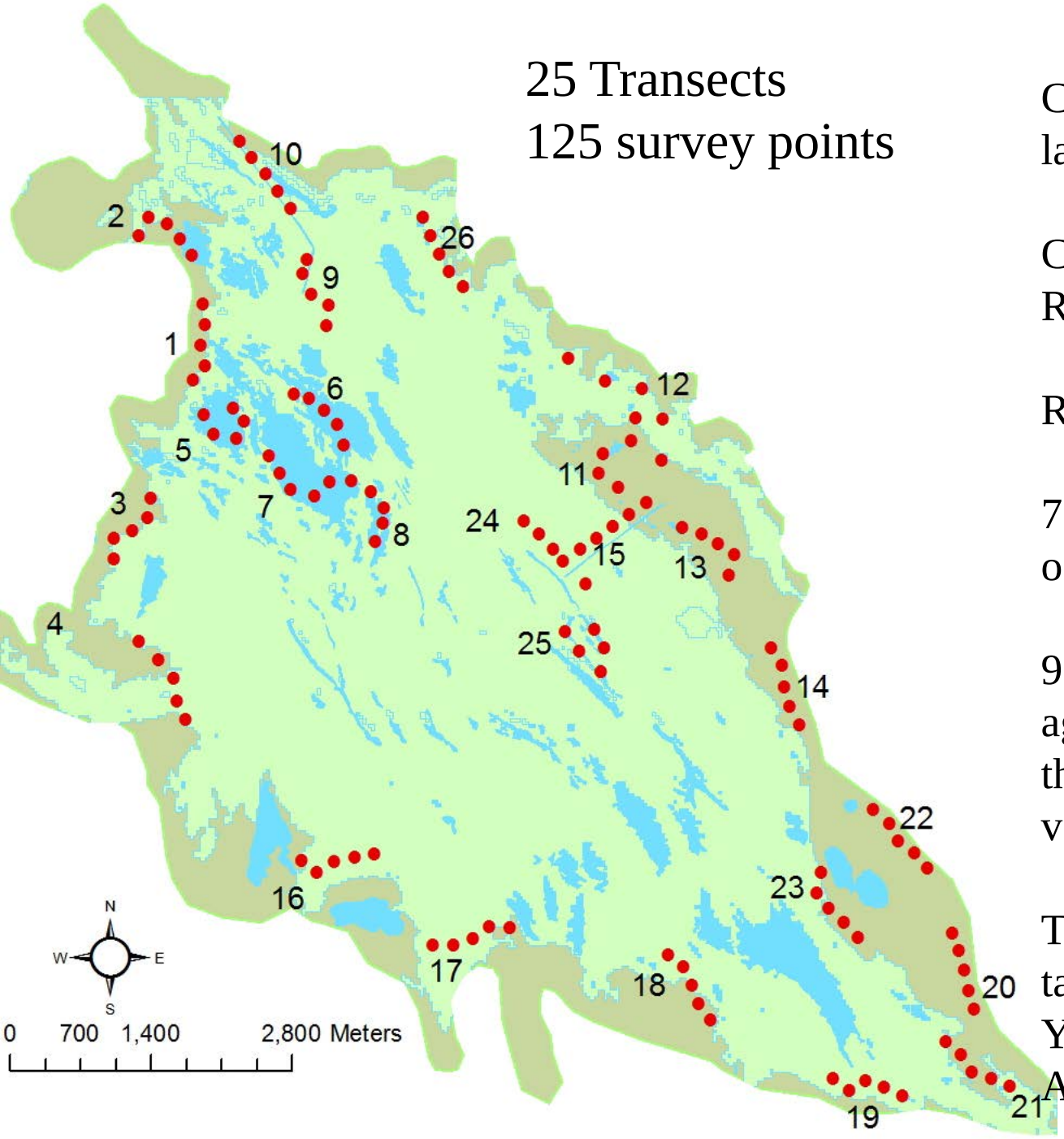
Protocol

- Standardized Protocol for Monitoring Marshbirds in North America
- Two times per year: March and May
- Based on statistical power analysis to detect trends >3% per year
- 17 years of data: 1999-2015



Marshbird monitoring sites in the Colorado River Delta.

556 point surveys



Cienega de Santa Clara: largest wetland in the Delta

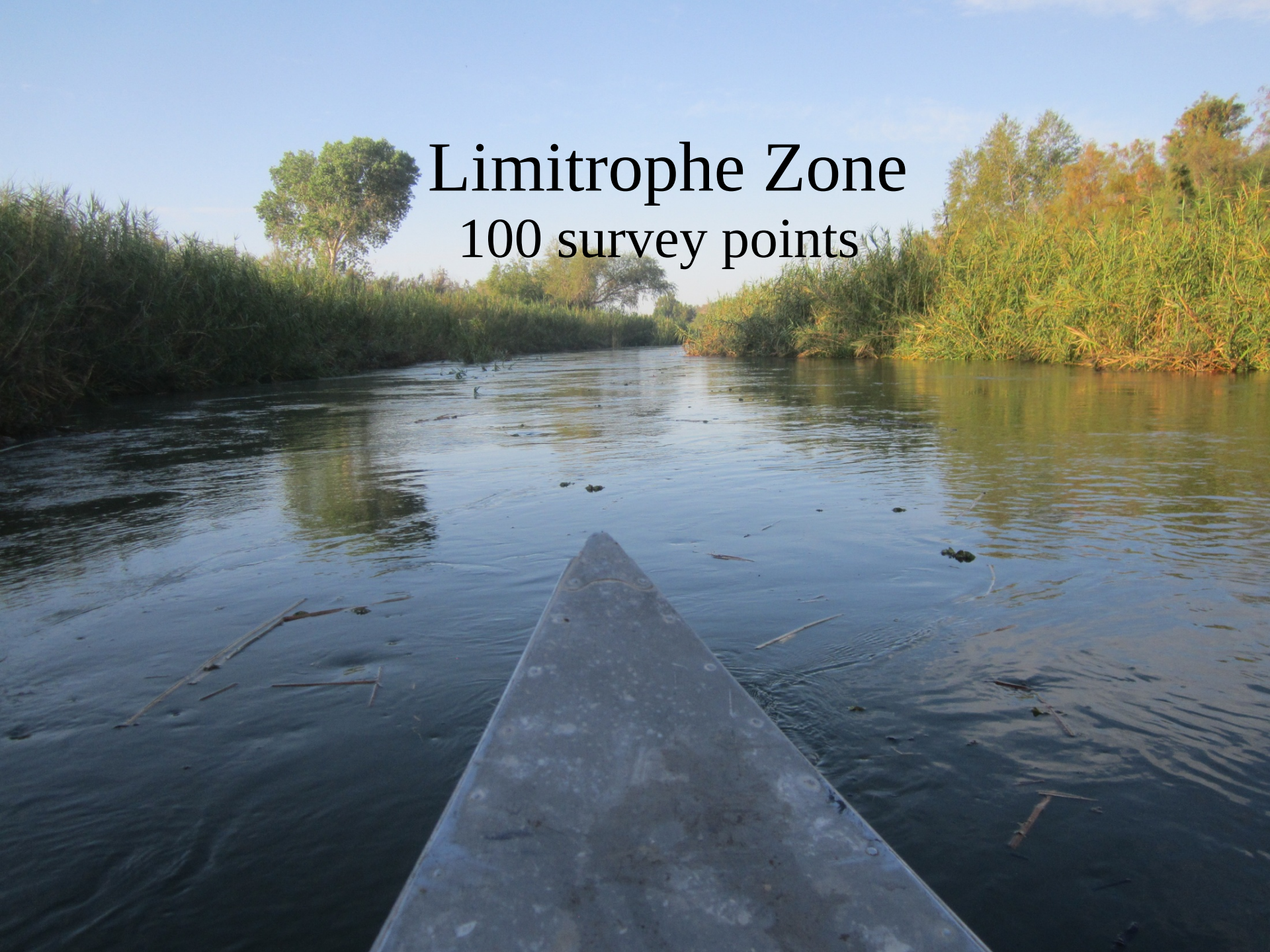
Core Zone of the Biosphere Reserve

Ramsar Site

75% of the total population of Yuma Clapper Rails

90% of its water is agricultural drainage from the Welton and Mohawk valleys in Arizona

This same water has being targeted to be used by the Yuma Desalting Plant in Arizona


Limitrophe Zone
100 survey points

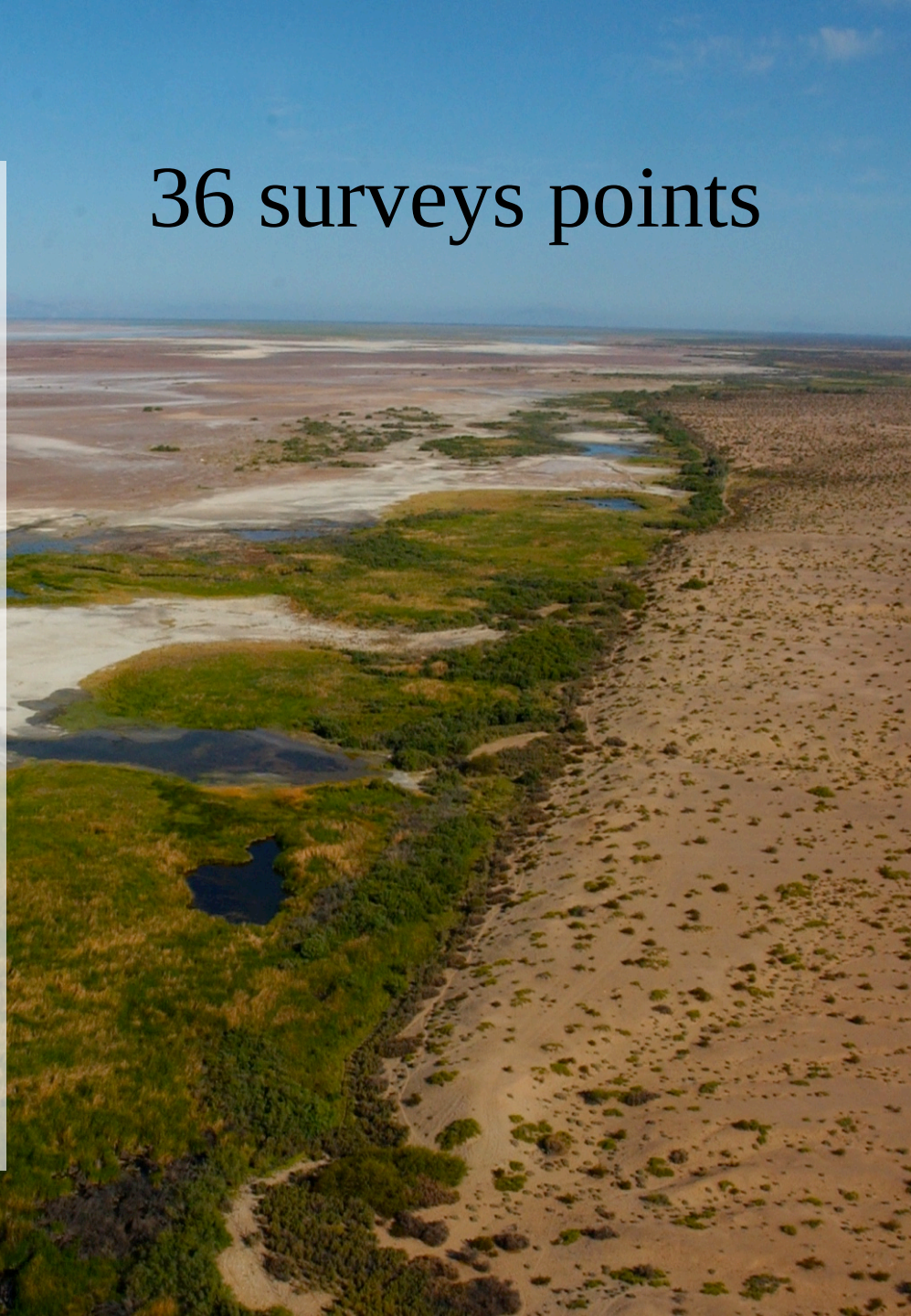
El Doctor Wetlands

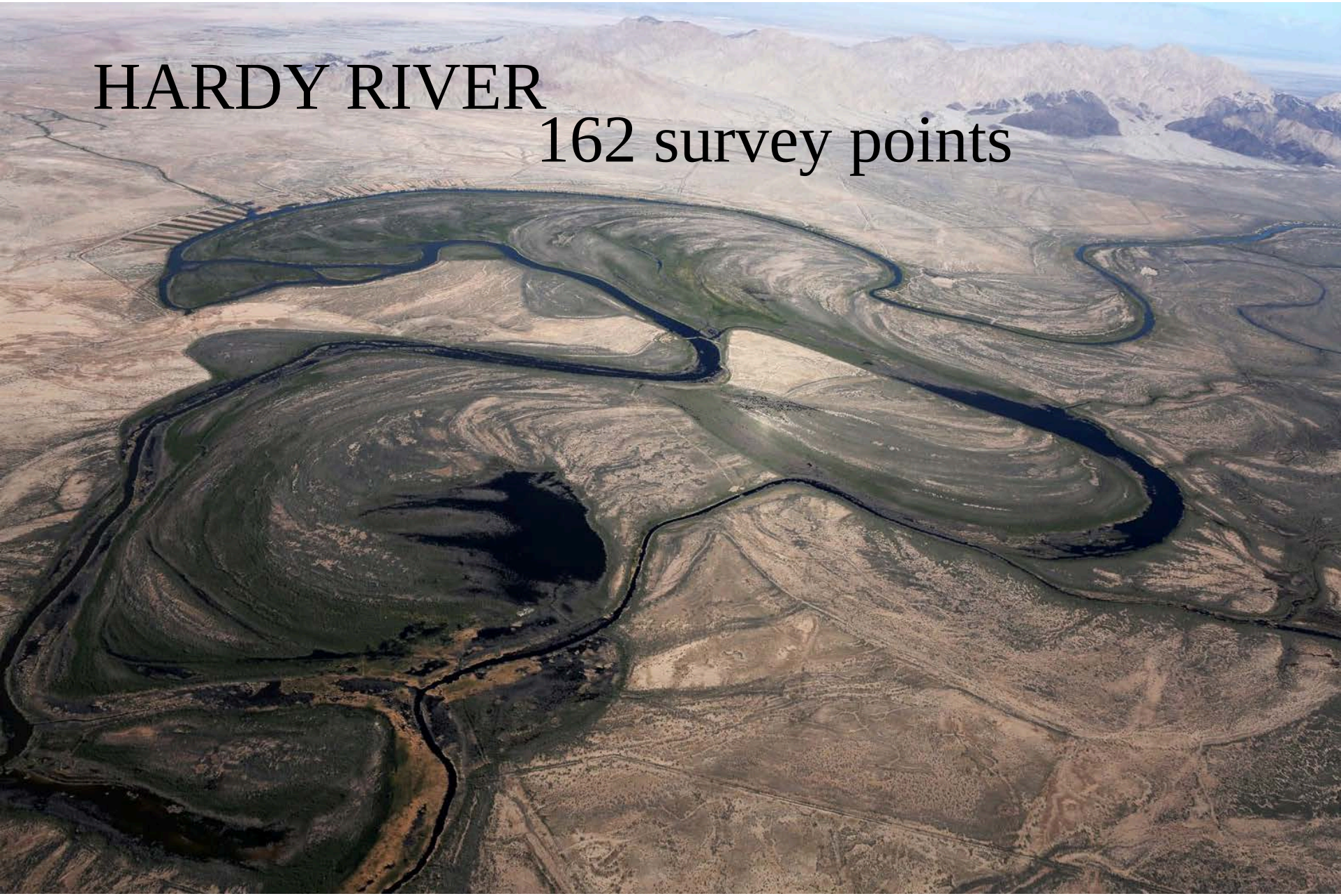
- **Maintained by freshwater springs along the Gran Desierto escarpment**

- **350 ha of marshlands, mesquite and saltcedar areas**

- **Core zone of the Upper Gulf of California and Colorado River Delta Biosphere Reserve**

36 surveys points




HARDY RIVER
162 survey points

MESA DE ANDRADE WETLANDS

6 survey points

COLORADO RIVER (RS)

96 Points sur

LAS ARENITAS WATER TREATMENT PLANT

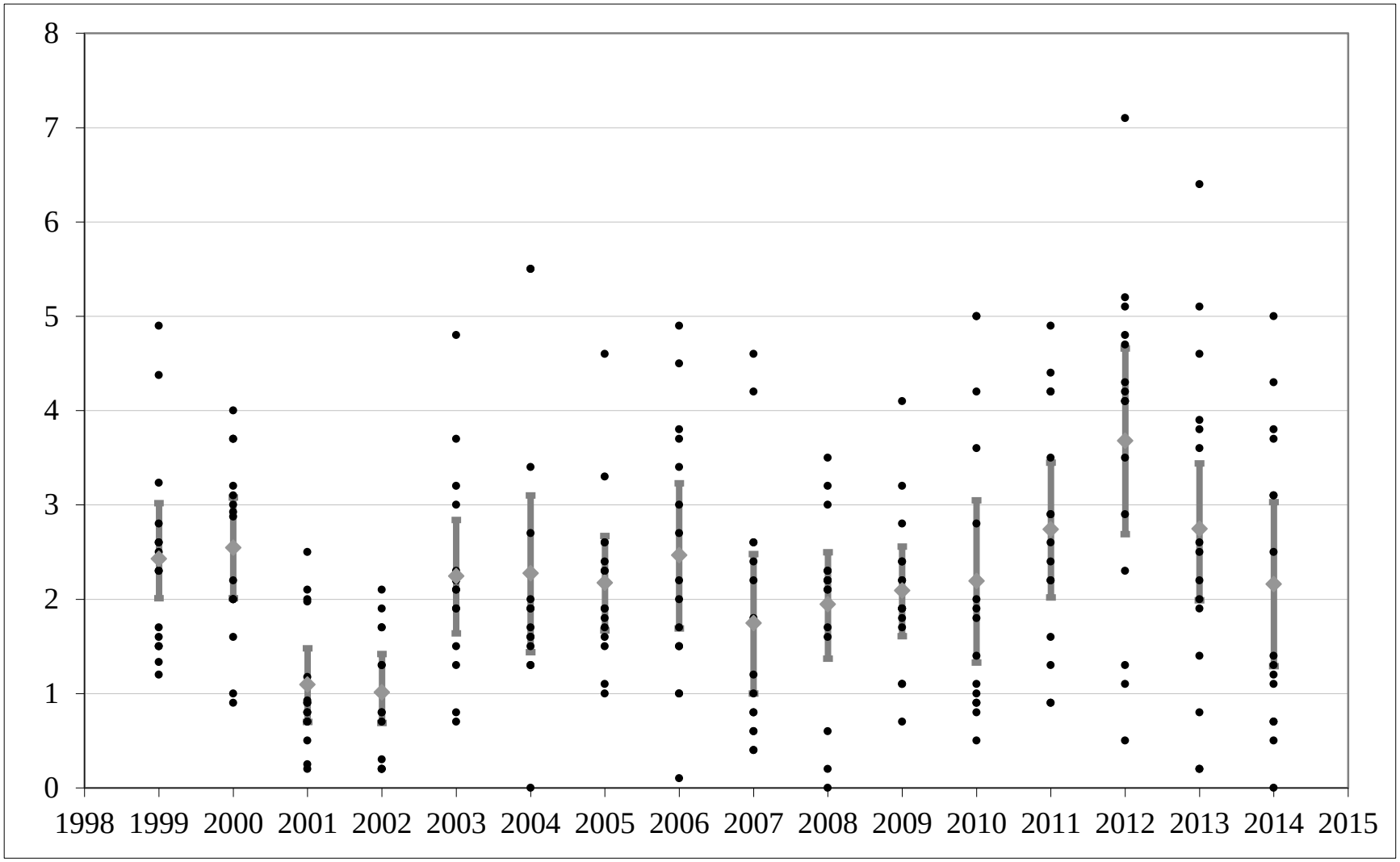
30% of the effluent guaranteed for instream flows in the Hardy River (25 cfs or 18K afy)

14 surveys points

Detections of Yuma Clapper Rails in the wetlands of the Colorado River Delta, from 2010 to 2015.

Yuma Clapper Rail	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Cienega de Santa Clara	526	374	939	1120	506	560
Colorado River	2	25	11	25	5	20
Hardy River	70	60	51	199	134	201
Las Arenitas	0	0	6	5	3	1
Mesa de Andrade	0	0	5	3	3	6
Laguna del Indio	17	27	42	48	19	34
El Doctor Wetlands	1	0	1	6	2	4
Limitrophe Zone	NS	NS	NS	NS	1	0
Total	616	486	1055	1406	673	826

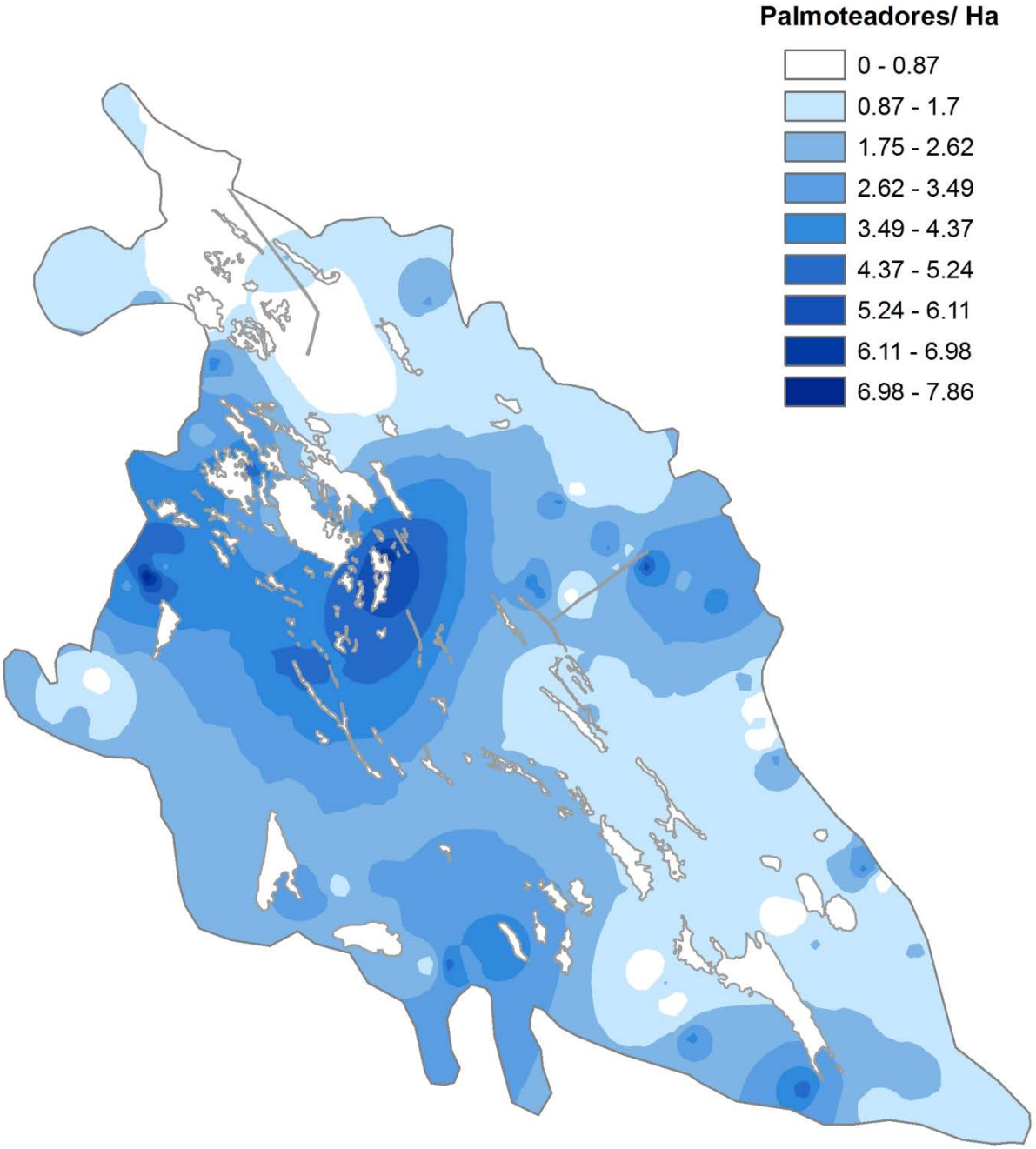
Population trend of Yuma Clapper Rails (rails per point) in the Cienega de Santa Clara, from 1999 to 2014.



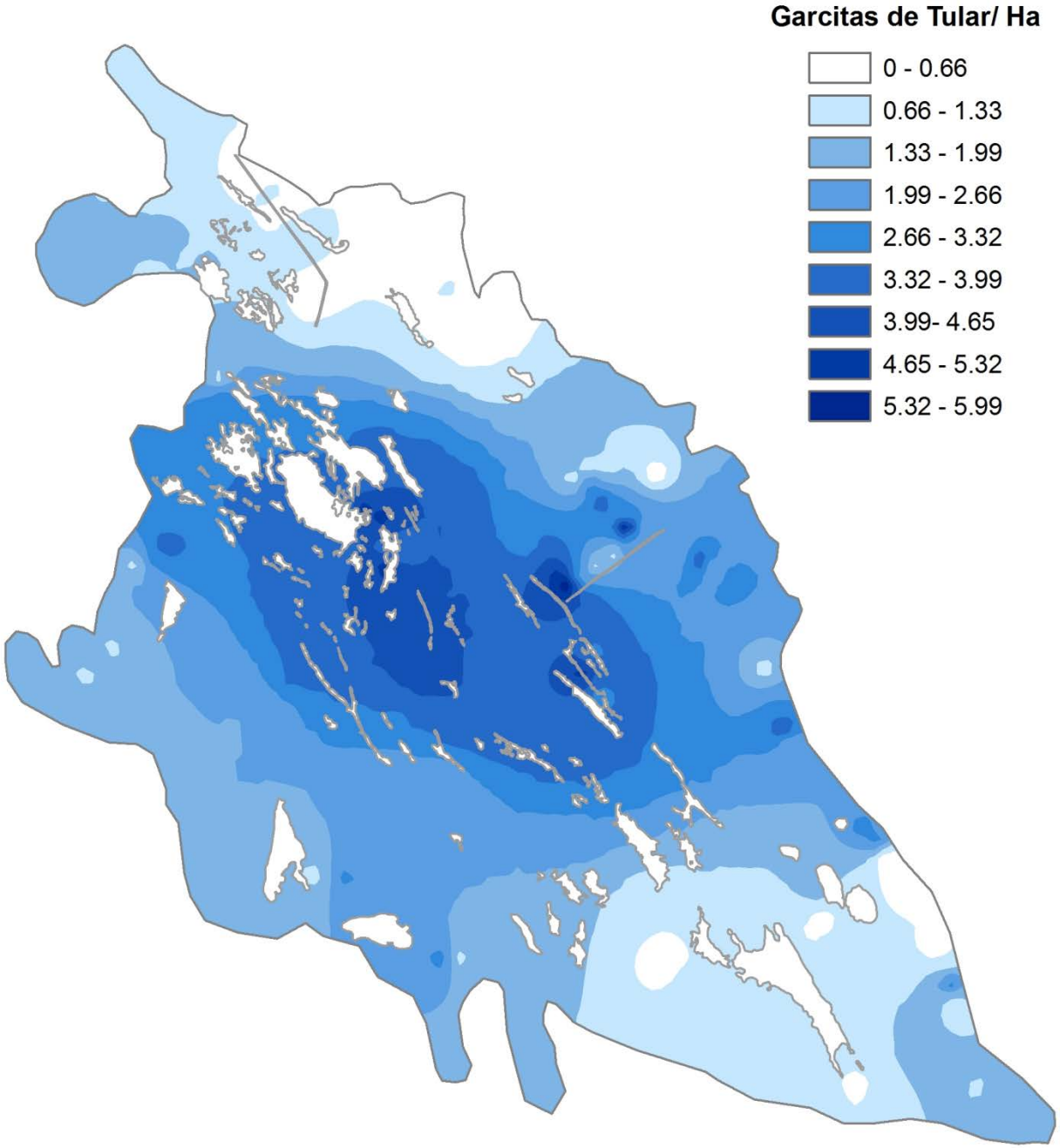
Population estimates of Yuma Clapper Rails in the Cienega de Santa Clara, obtained with density estimation models based on distance, from 2010 to 2014.

	Density	**Abundance**	**95% Confidence Interval**	
Year	Rails/ha	Individuals	Lower Limit	Upper Limit
2010	0.94	5438	4229	6993
2011	1.49	8642	7714	9686
2012	1.15	6681	5707	7812
2013	1.09	6322	4525	8120
2014	0.82	4756	4002	5626

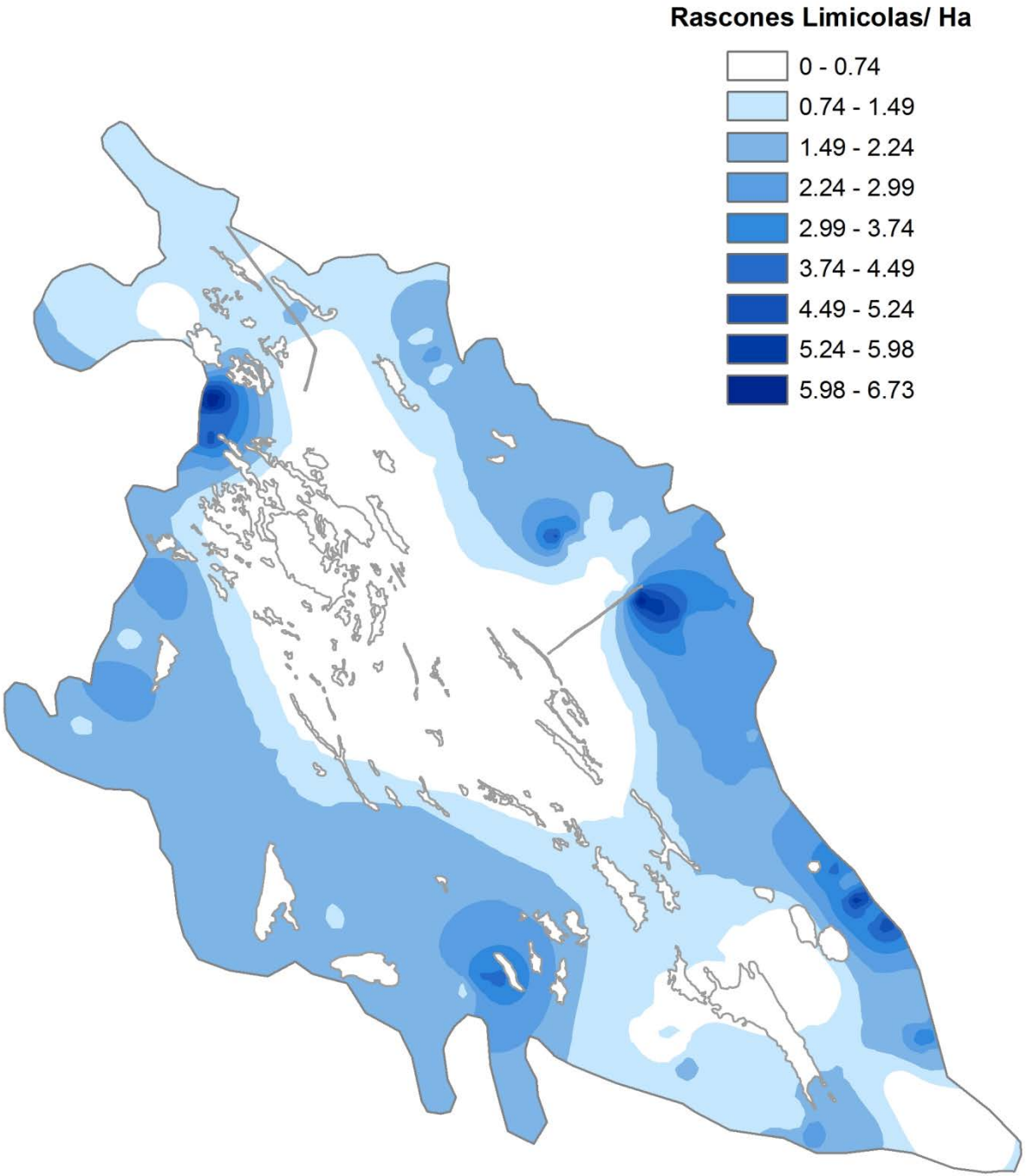
Density distribution of Yuma Clapper Rails in the Cienega de Santa Clara in 2014



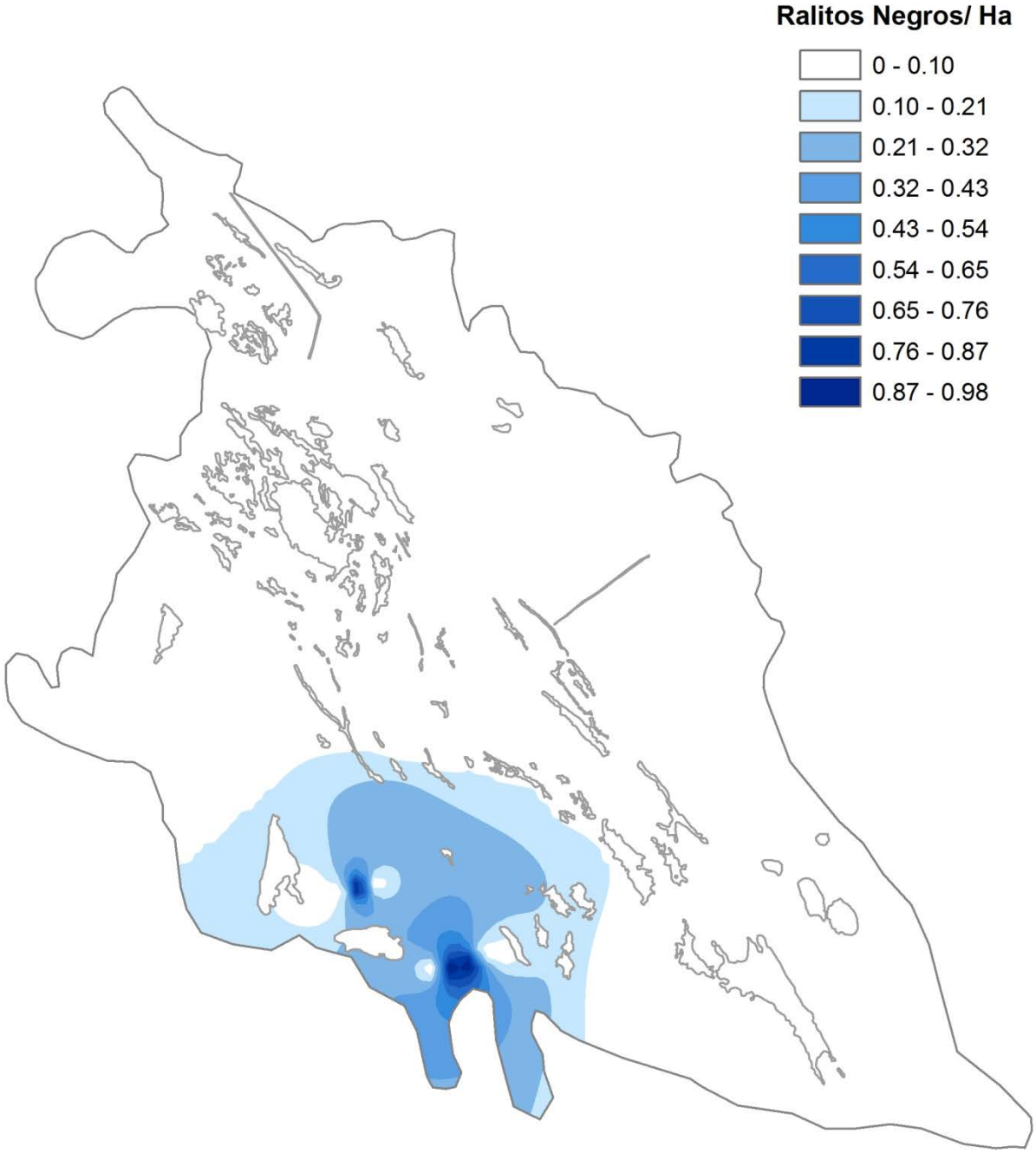
Density distribution of Least Bitterns in the Cienega de Santa Clara in 2014



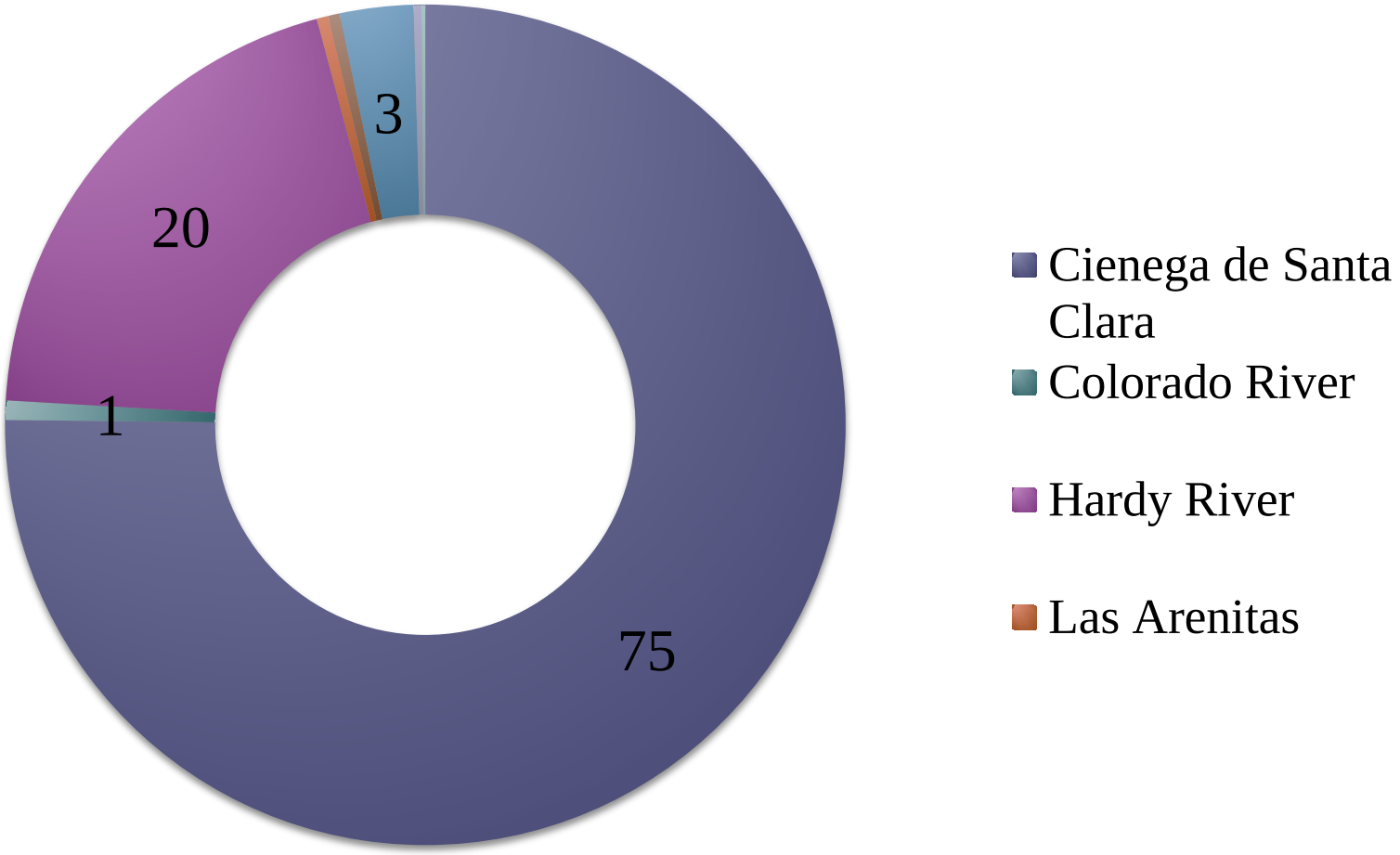
Density distribution of Virginia Rails in the Cienega de Santa Clara in 2014



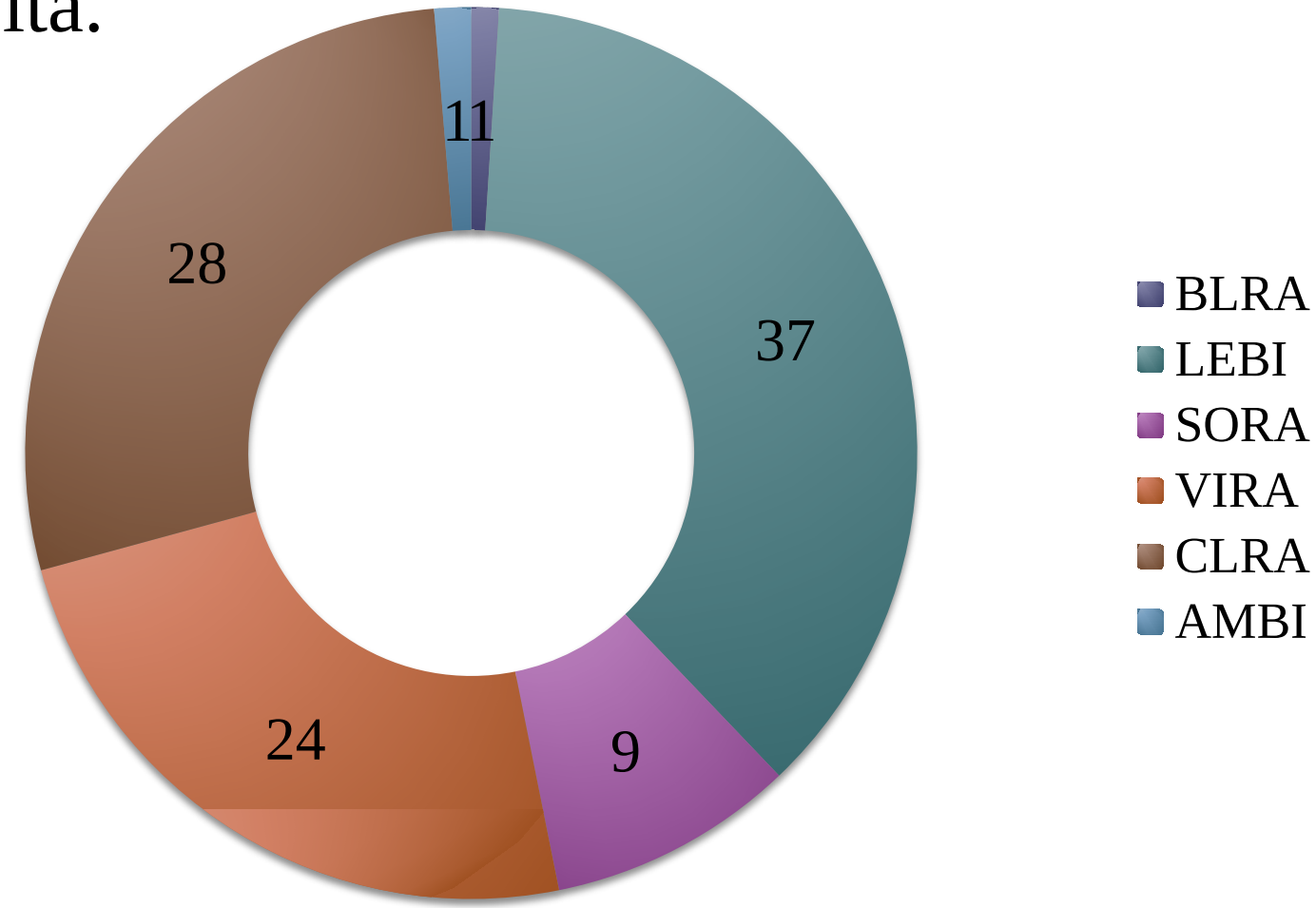
Density distribution of Black Rails in the Cienega de Santa Clara in 2014

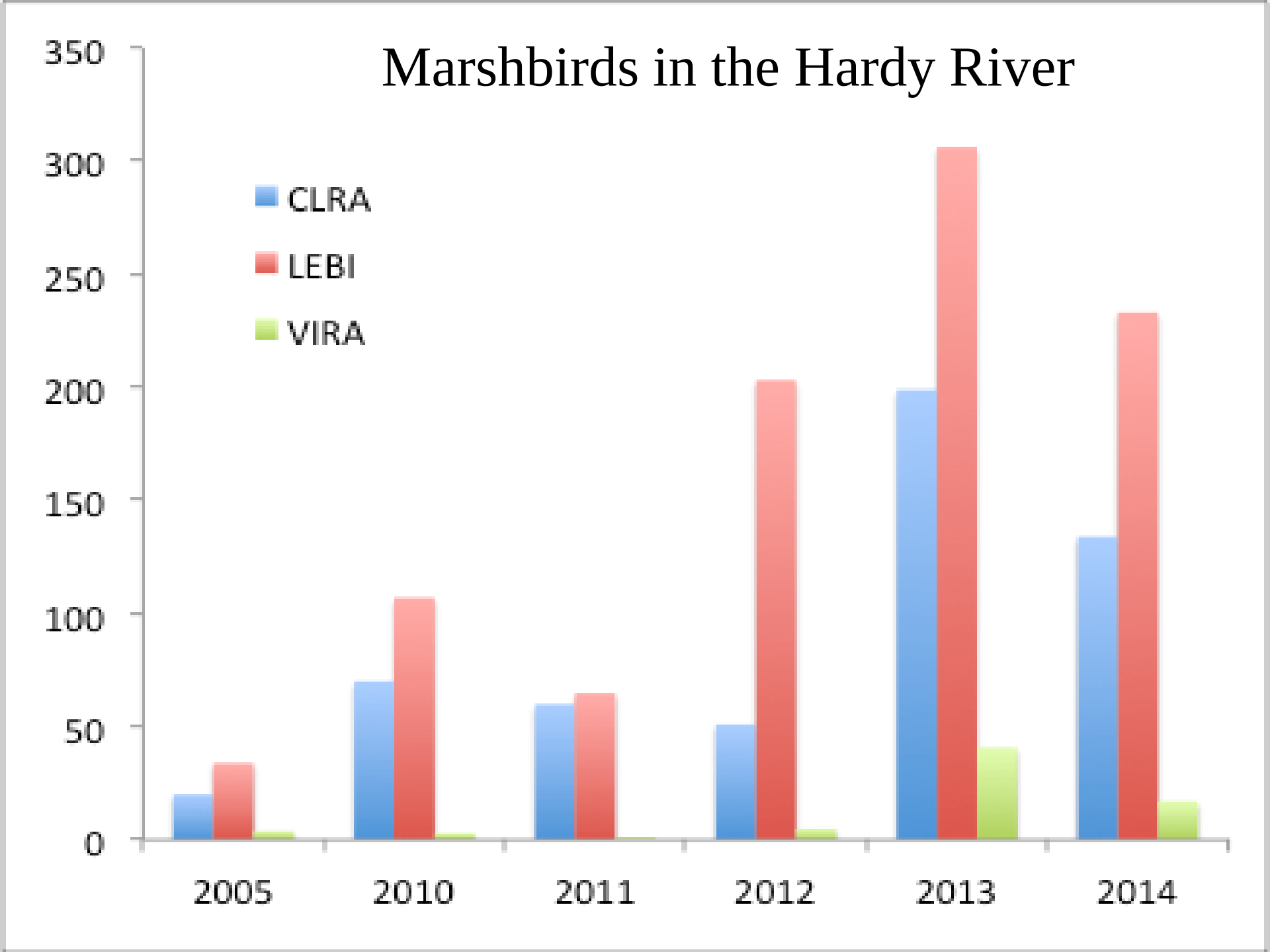


Percent of detections of Yuma Clapper Rails in the wetlands of the Colorado River Delta

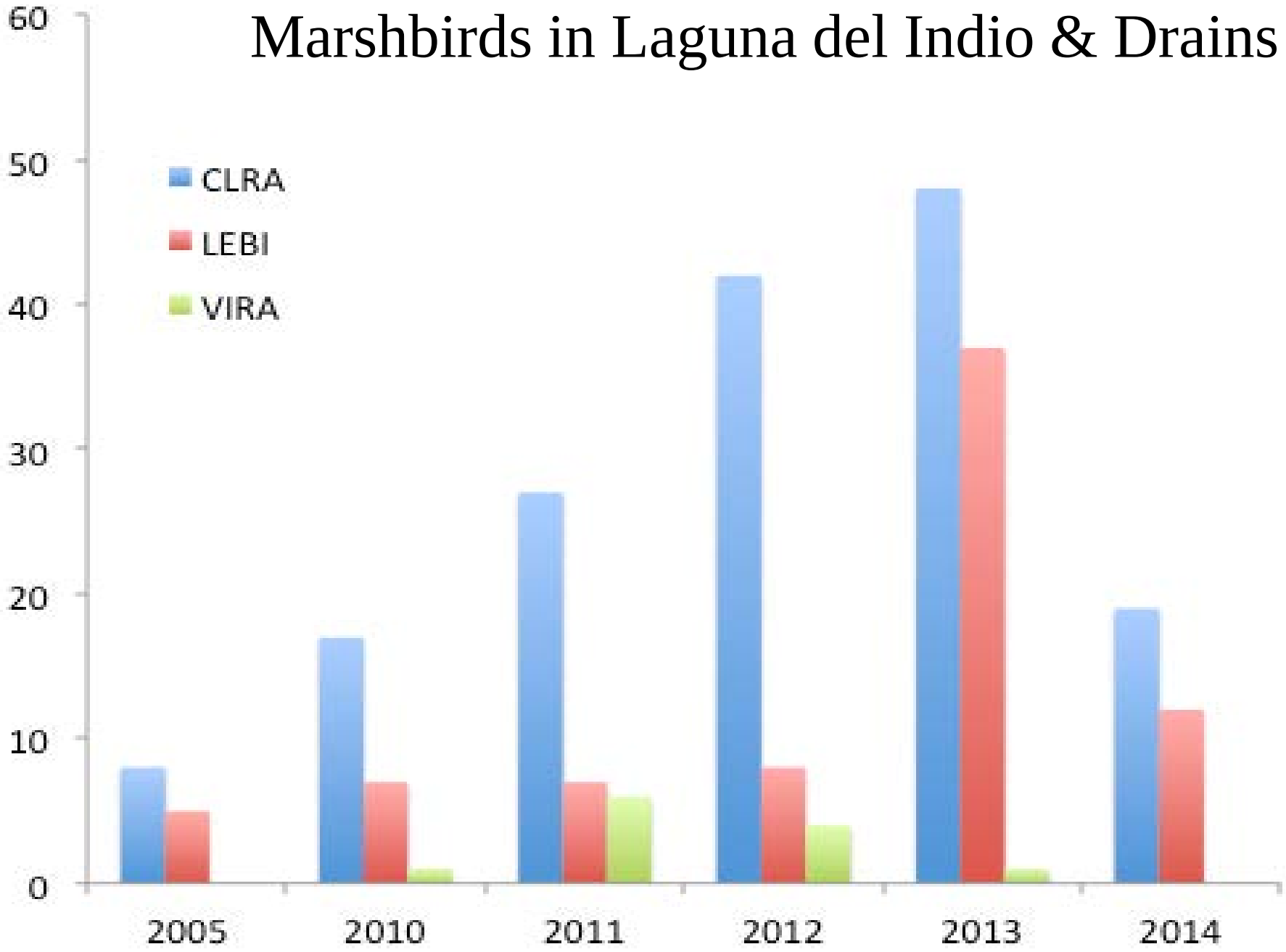


Percent of detections by species in the wetlands of the Colorado River Delta.




Marshbirds in the Hardy River
350
300
250
200
150
100
50
0
CLRA
LEBI
VIRA
2005
2010
2011
2012
2013
2014

Marshbirds in Laguna del Indio & Drains



GRACIAS!