MINE ROOST SURVEYS AND MONITORING FOR LOWER COLORADO RIVER BAT SPECIES

October 2002 through January 2014

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Brown-Berry Biological Consulting
Bishop, California

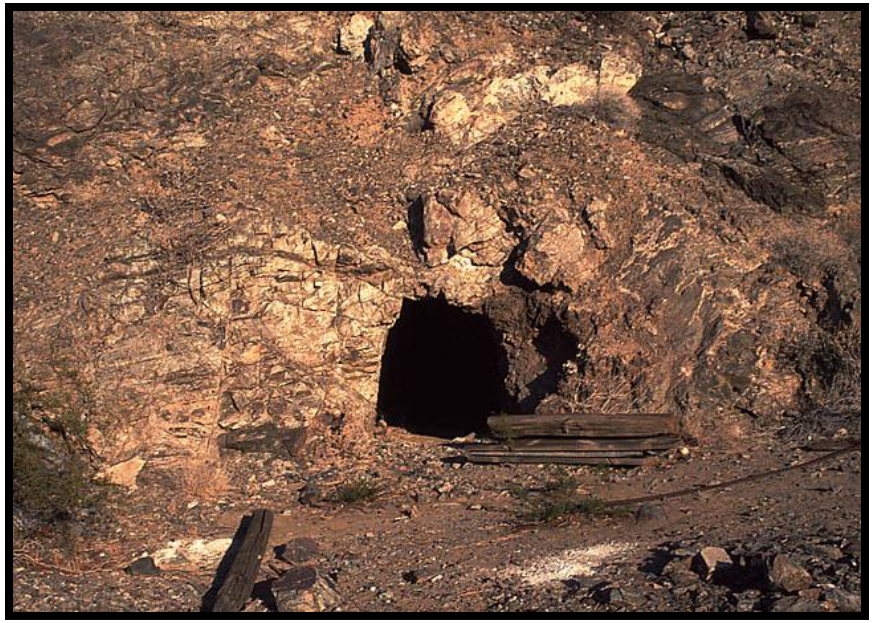
- **Funding provided by Bureau of Reclamation & Bureau of Land Management**

This project is dedicated to the memory of my husband and partner Dr. Robert Berry, who shared in my research along the LCR between 1980 and 2007, and to Dr. Ken Stager who introduced me to the bats of the LCR 46 years ago, and shared his field notes and his memories of the relatively undeveloped LCR of over 75 years ago.

ROOST SURVEY GOALS

- To monitor and census colonial bat roosts, with emphasis on LCR MSCP covered and indicator species
- To identify potential species-specific threats to bat roost sites
- To assist in the protection of critical roosts

Townsend's Big-eared Bat



Alice Mine, Riverside Mountains

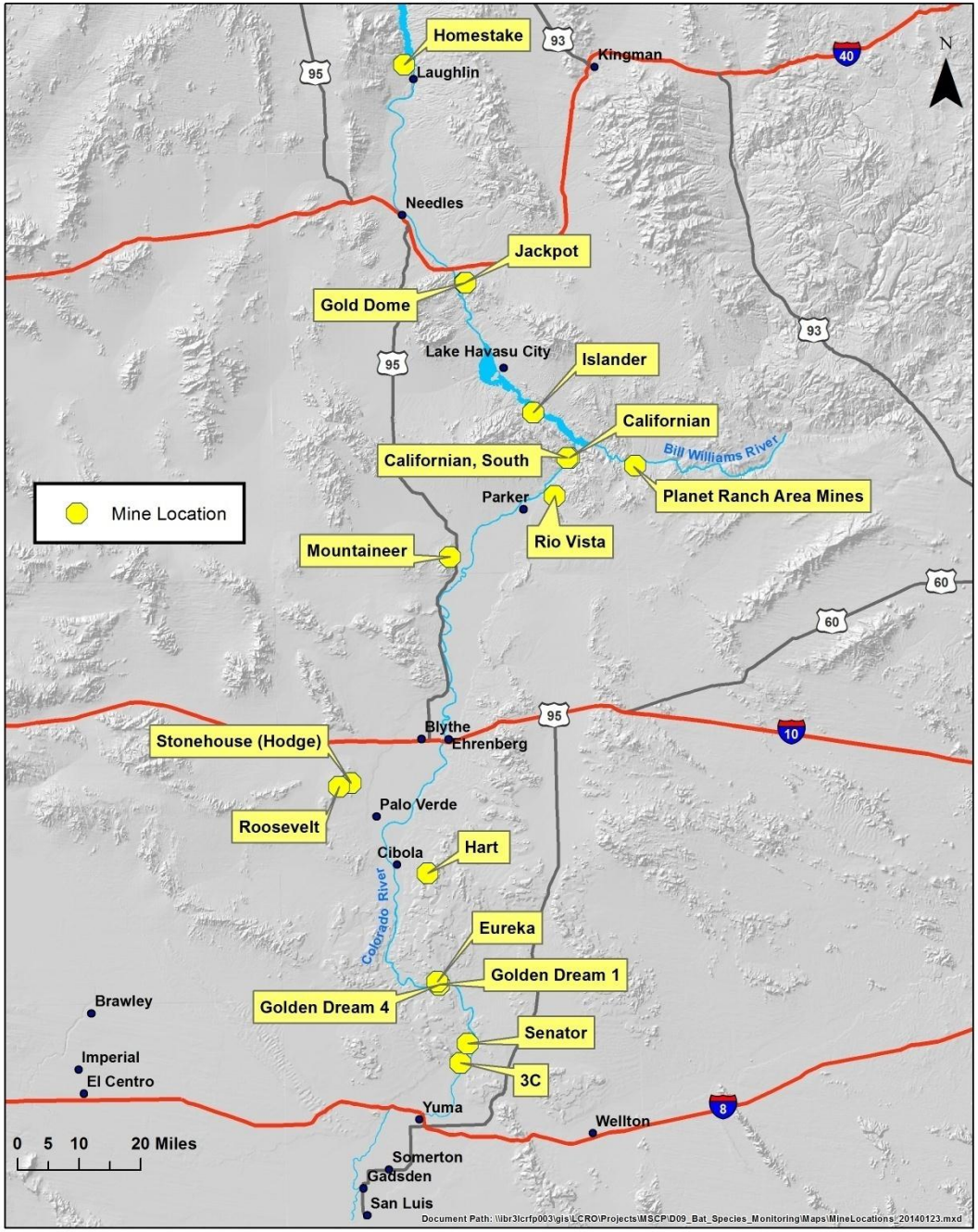
Historically large colonies in abandoned mines along the Colorado River

Foraged in cottonwood riparian

Marked declines attributable to loss of cottonwood riparian and roost disturbance

Known *Macrotus* Roosts

Mine Locations Along the Lower Colorado River



Pat in Californian Mine 1975

Macrotus released

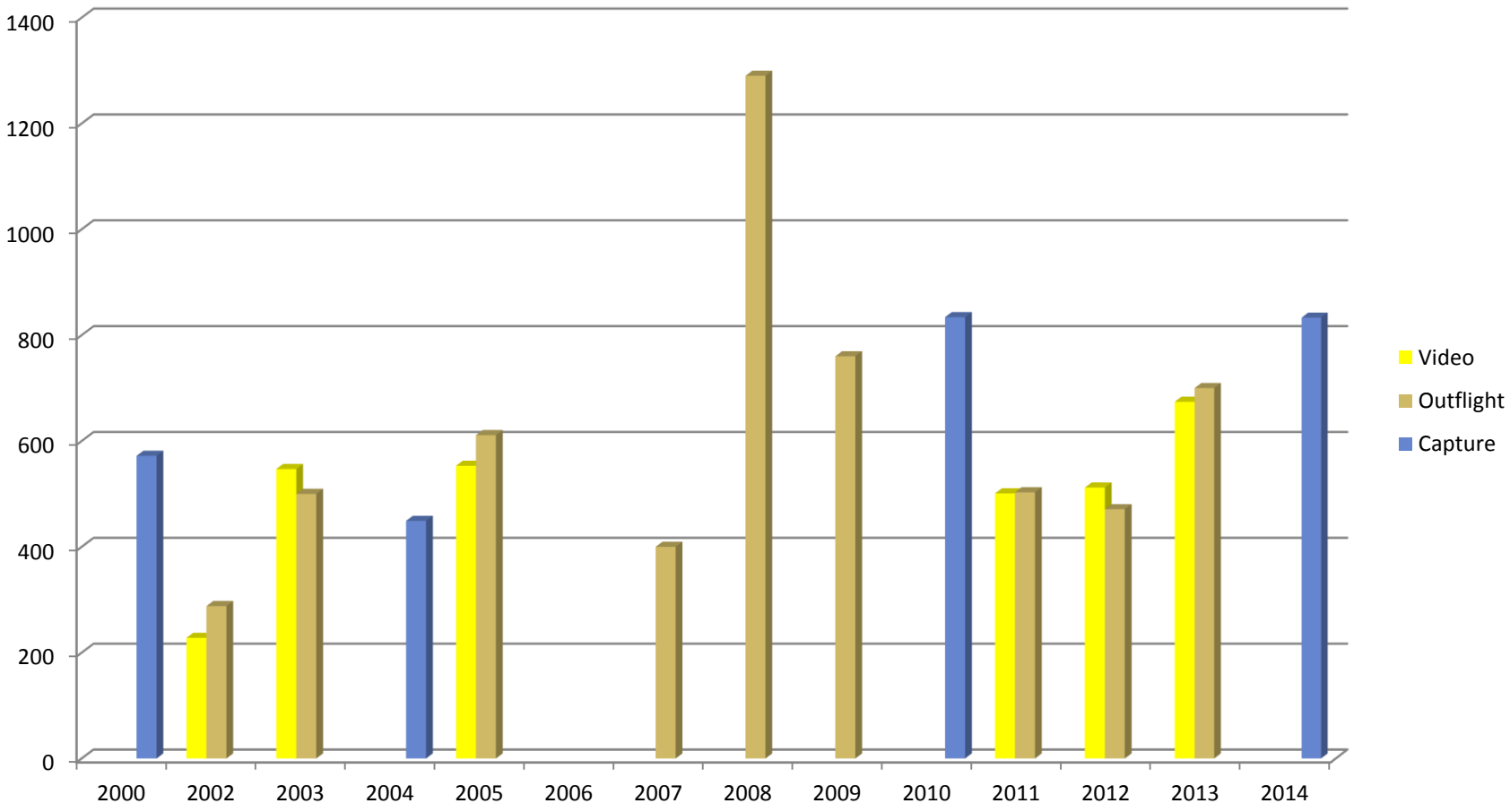
Californian Mine before entry
RHODY
6

Californian Mine after exit

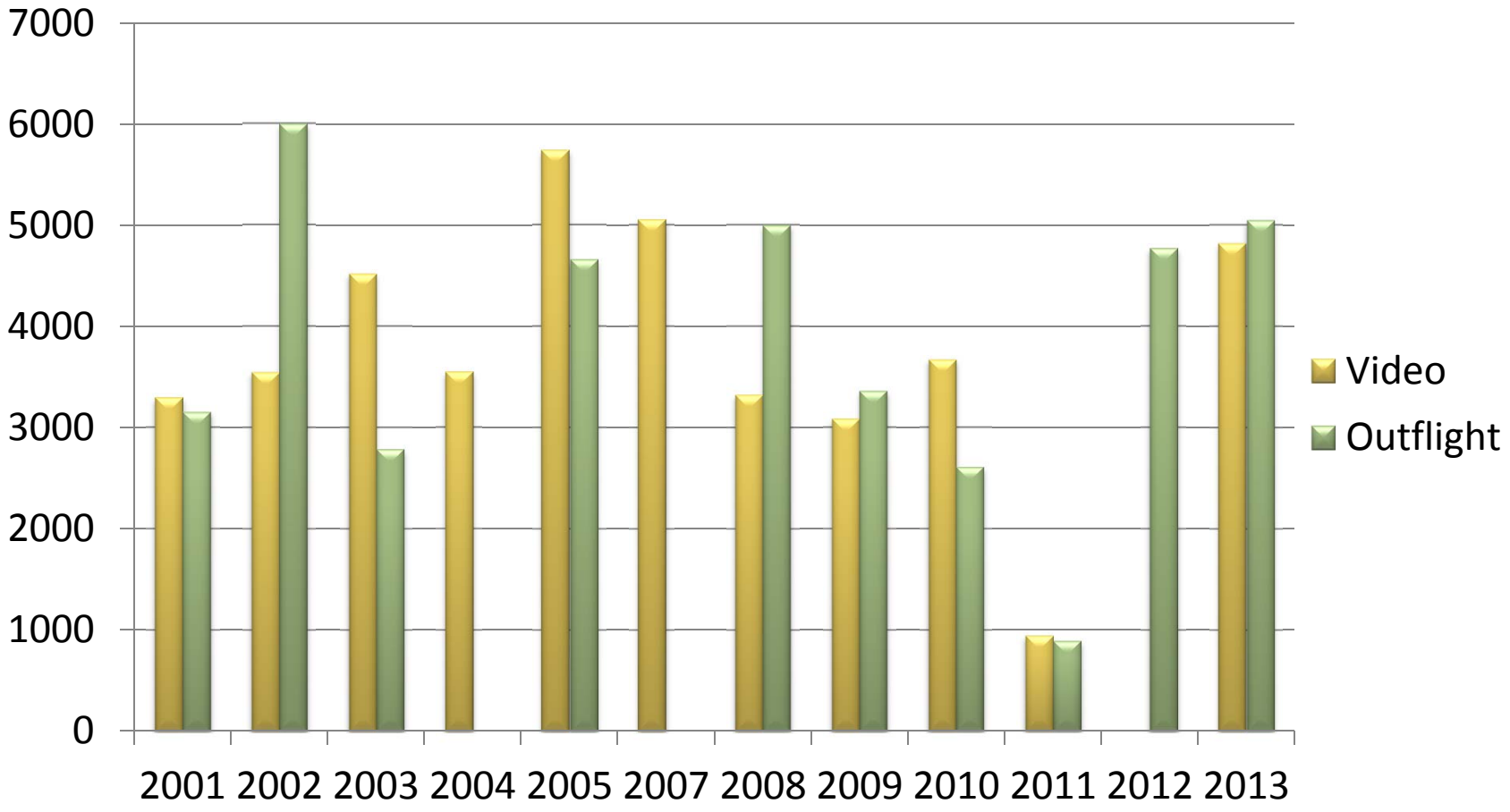
January 25, 2014

Our Supervisor

Californian Mine winter exit counts



Californian Mine spring exit counts



Cave Myotis
Myotis velifer

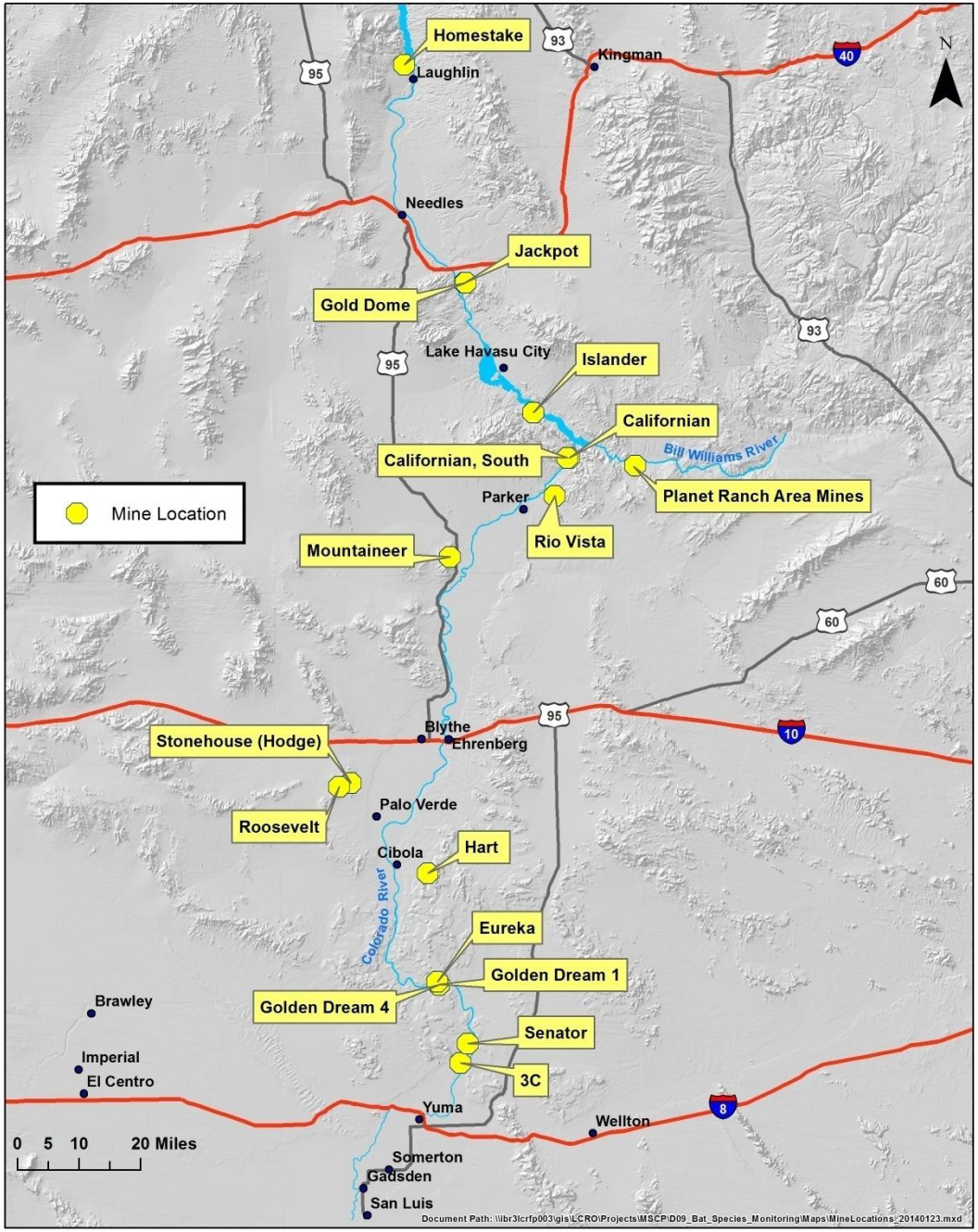
Yuma Myotis

Arizona Myotis
13 11:47 AM

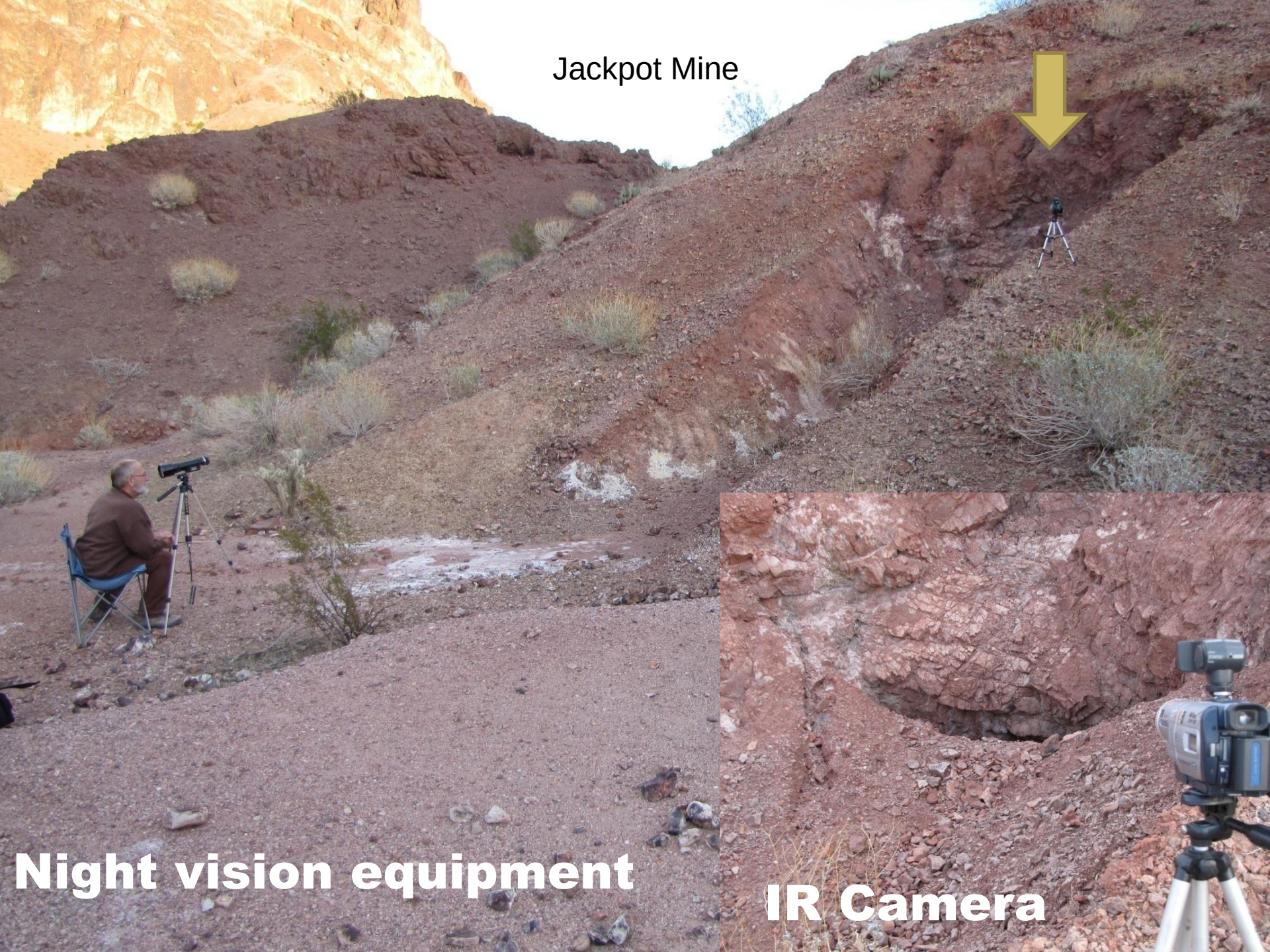
Mine Selection Criteria

- Historic roosts
- LCR MSCP Species
- Maternity colonies
- Large colonies
- Accessible
- Protected by gates or location
- Different areas along the LCR

Mine Locations Along the Lower Colorado River



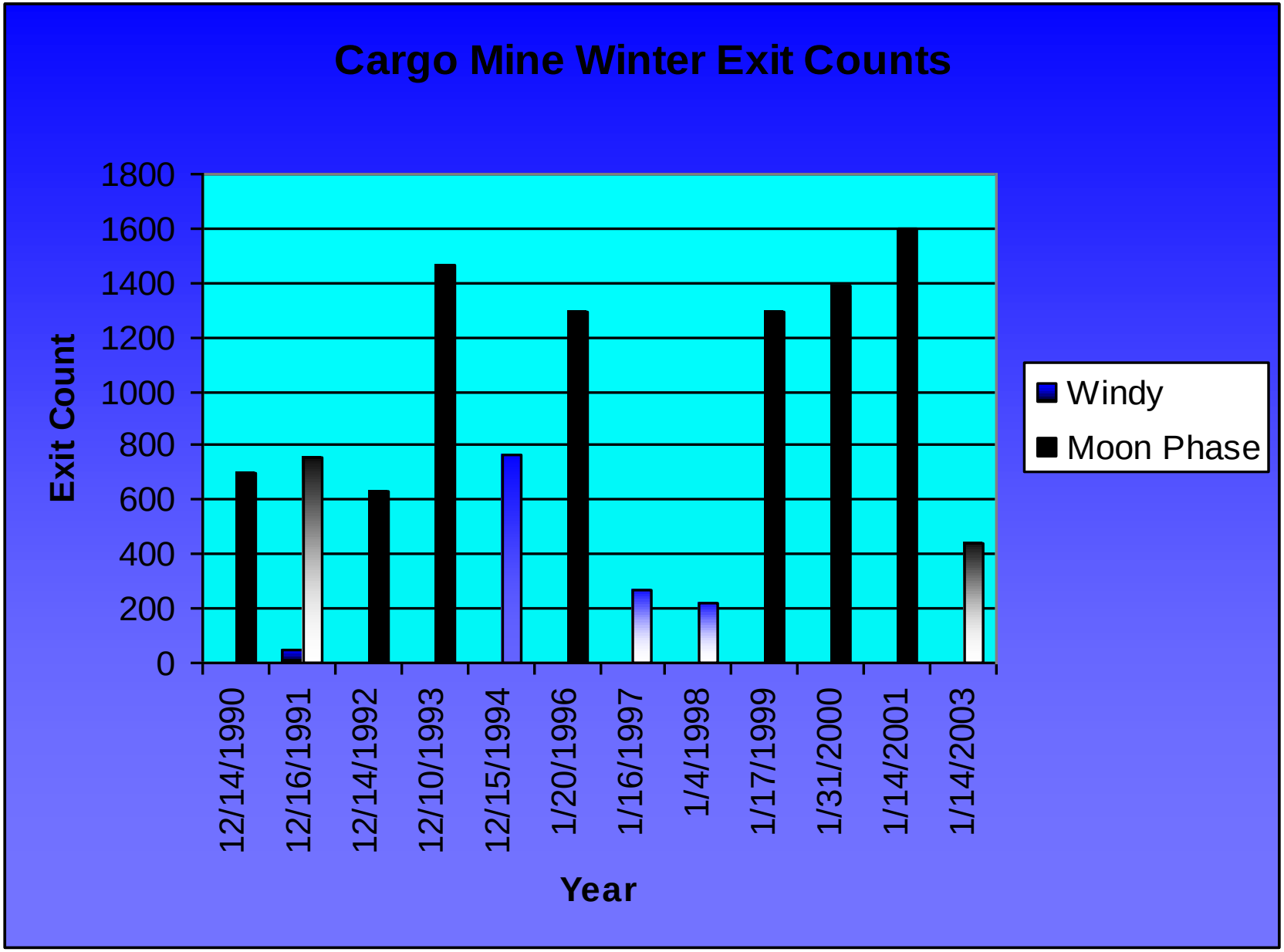
Mine Site	Winter	Spring	Surveyed	# openings	Ownership
3C	Maca	Maca male, Myyu maternity	W,S	1	BLM
Californian	Maca	Maca male, Myve maternity	W,S	1	BLM
Californian, South	Maca	Maca maternity, Myve and Myyu	W,S	2	BLM
Eureka	Maca	Maca and Myyu maternity	S	7	USFWS
Gold Dome	Maca	male Maca, Myyu, Myve	S	1	USFWS
Golden Dream 1		Myyu maternity	S	1	USFWS
Golden Dream 4	Maca	Maca maternity	S	1	USFWS
Hart	Maca	Maca male	W,S	1	BLM
Homestake	Maca	Maca maternity, Myyu & Myve male	W,S	3	NPS
Islander	Maca. Tabr lek	Maca and Myyu maternity	S	4	BLM
Jackpot 1	Maca	Maca male, Myve maternity	W,S	1	USFWS
Mountaineer	Maca	Maca, Coto, Anpa, Myve & Epfu maternity	W,S	2 in winter, 4 in summer	BLM
Stonehouse (Hodge)	Maca	Maca and Myve maternity	W,S	5	BLM


Jackpot Mine
Night vision equipment
IR Camera

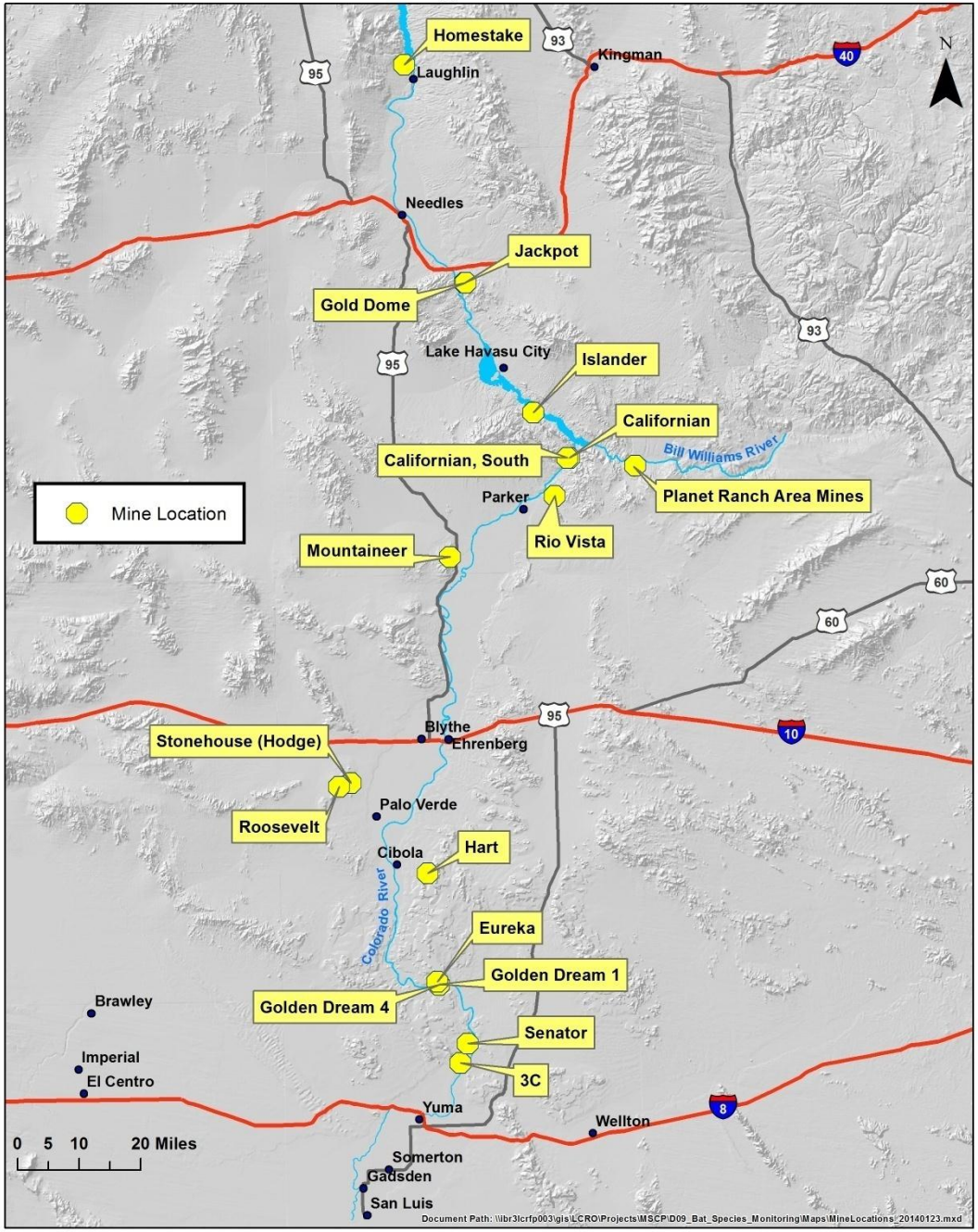
Moon Phase Effect

January 2003

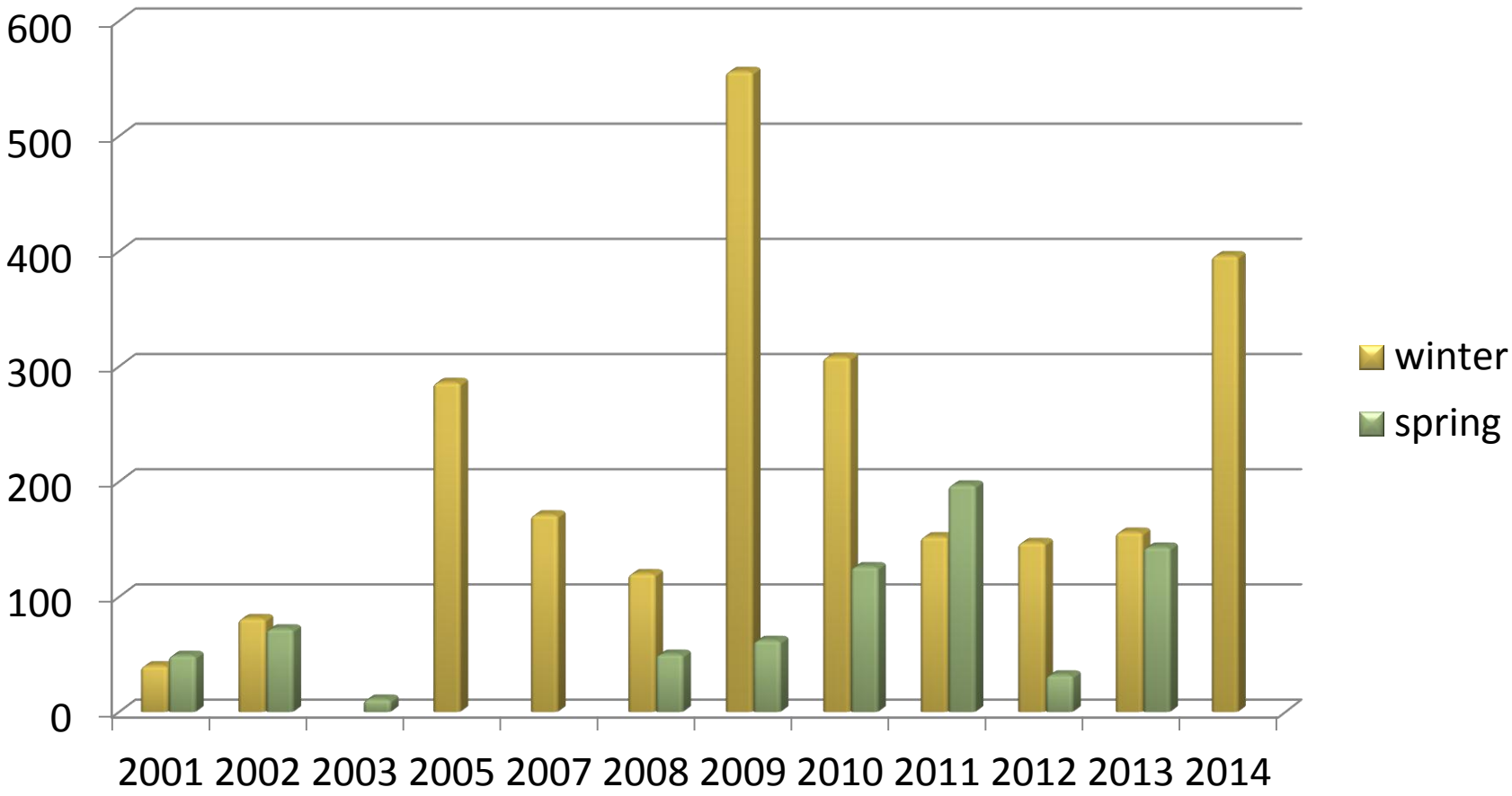
Mine	Macrotus Exit Count	
	Moon	No
3 C	1515	2491
Queen	26	144
American Boy	12	172


Cargo Mine Winter Exit Counts
Exit Count
1800
1600
1400
1200
1000
800
600
400
200
0
12/14/1990
12/16/1991
12/14/1992
12/10/1993
12/15/1994
1/20/1996
1/16/1997
1/4/1998
1/17/1999
1/31/2000
1/14/2001
1/14/2003
Year
Windy
Moon Phase

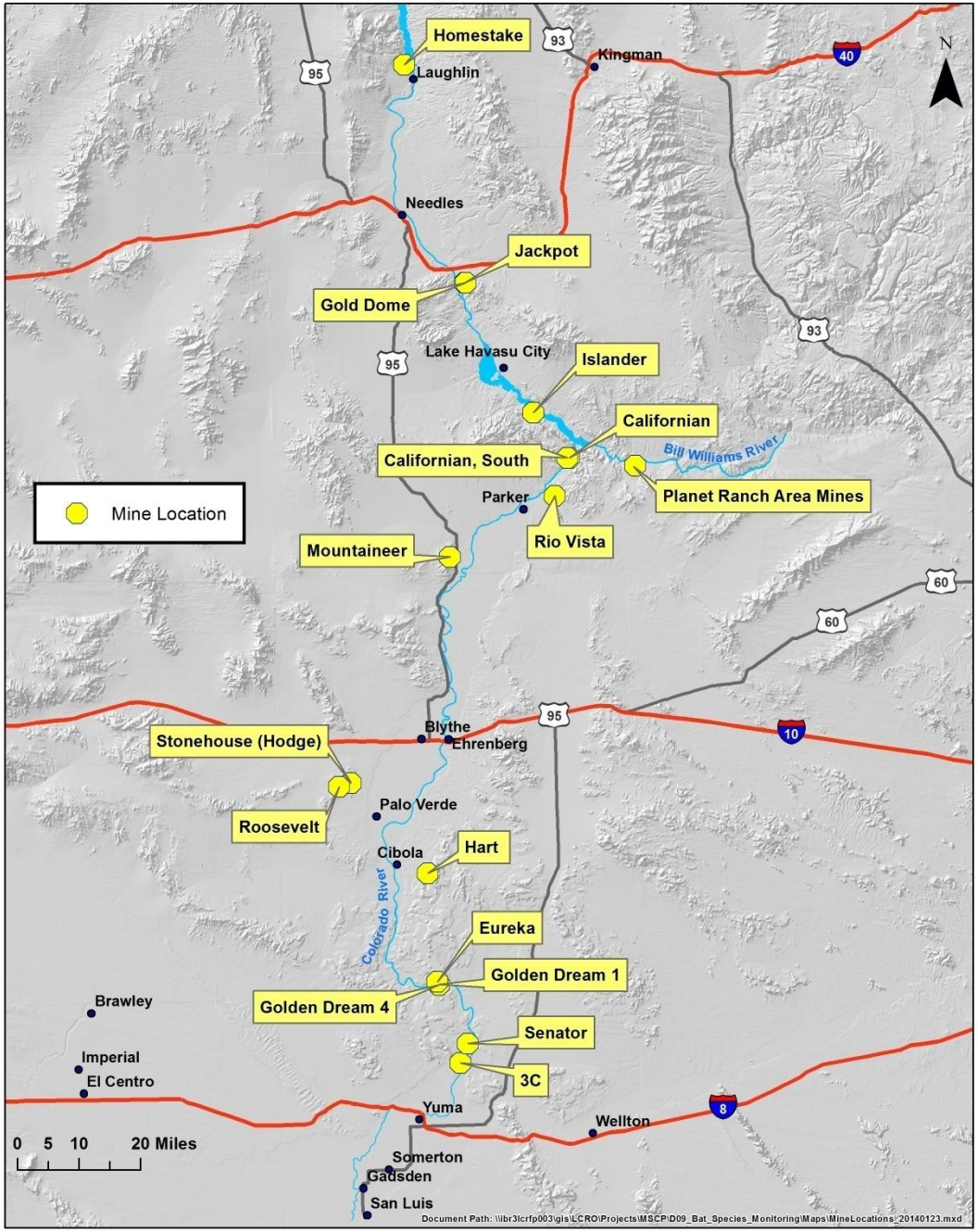
Mine Locations Along the Lower Colorado River



Homestake Mine winter and spring exit counts

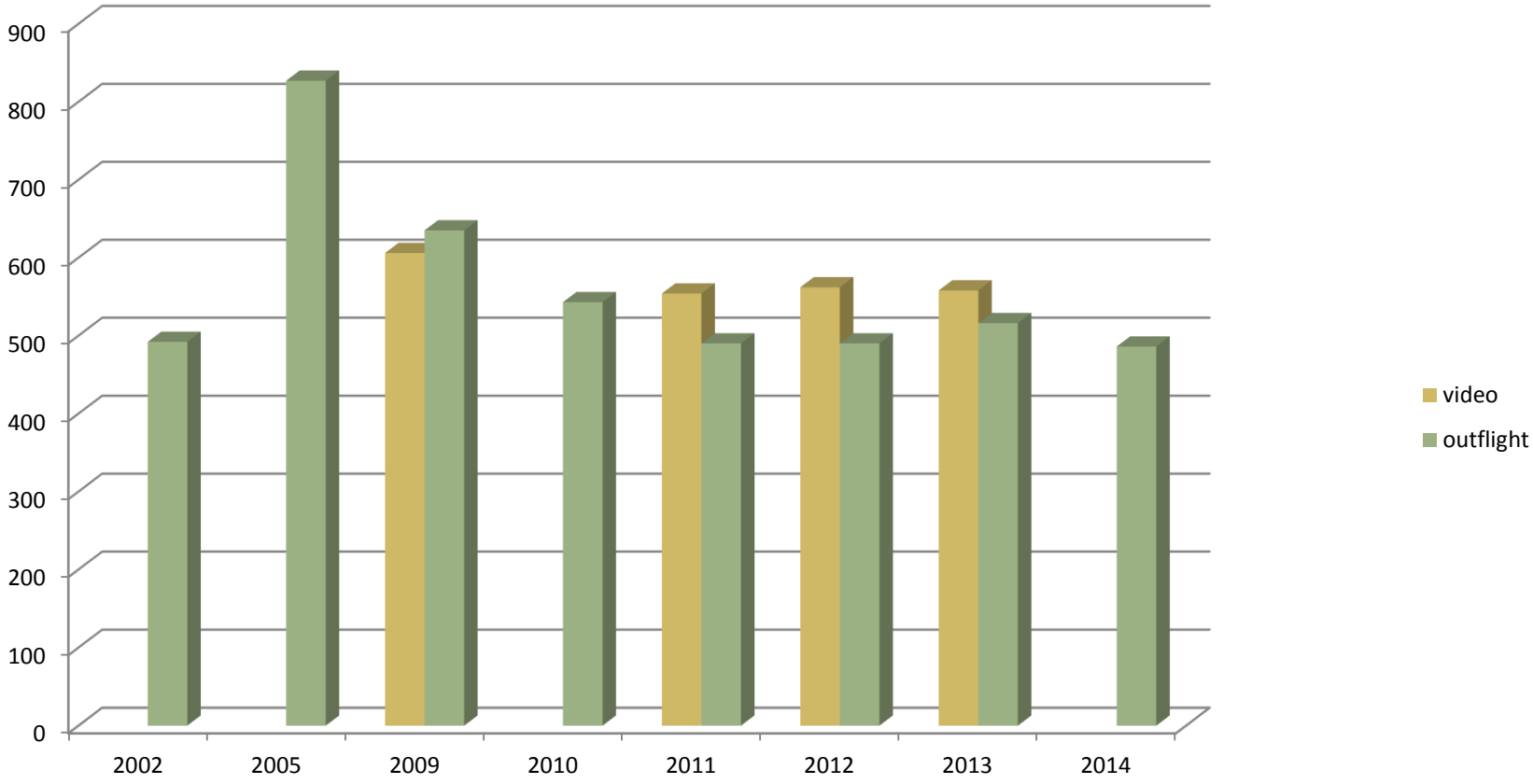


Mine Locations Along the Lower Colorado River

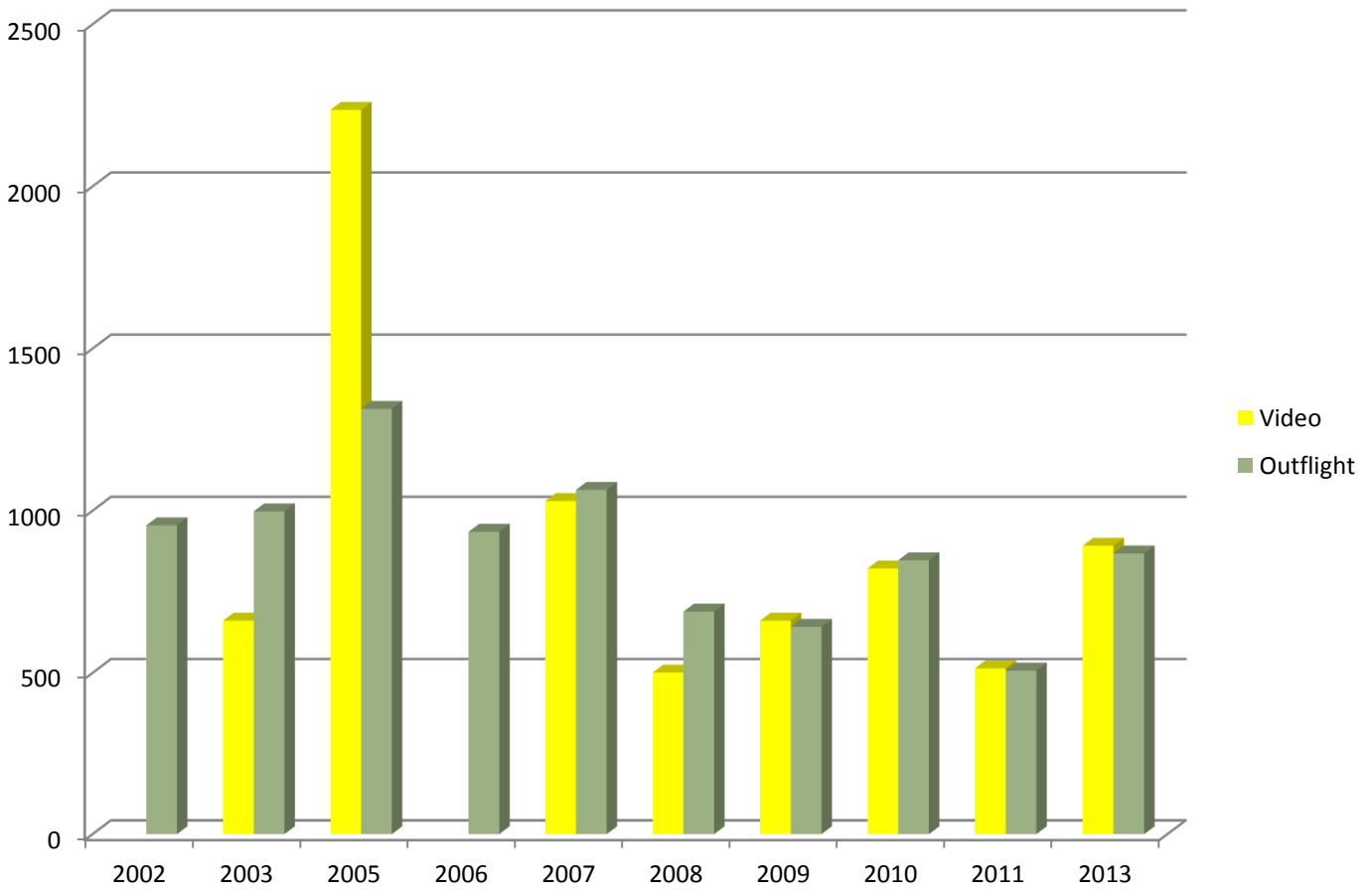


CAVES CLOSED
All caves, sinkholes, tunnels, and mines on the refuge are closed in an effort to slow the spread of White-Nose Syndrome (WNS). This ailment has killed hundreds of thousands of bats in the United States and may soon threaten bats in this area.
Thank you for your cooperation
Contact the Refuge Manager for further information

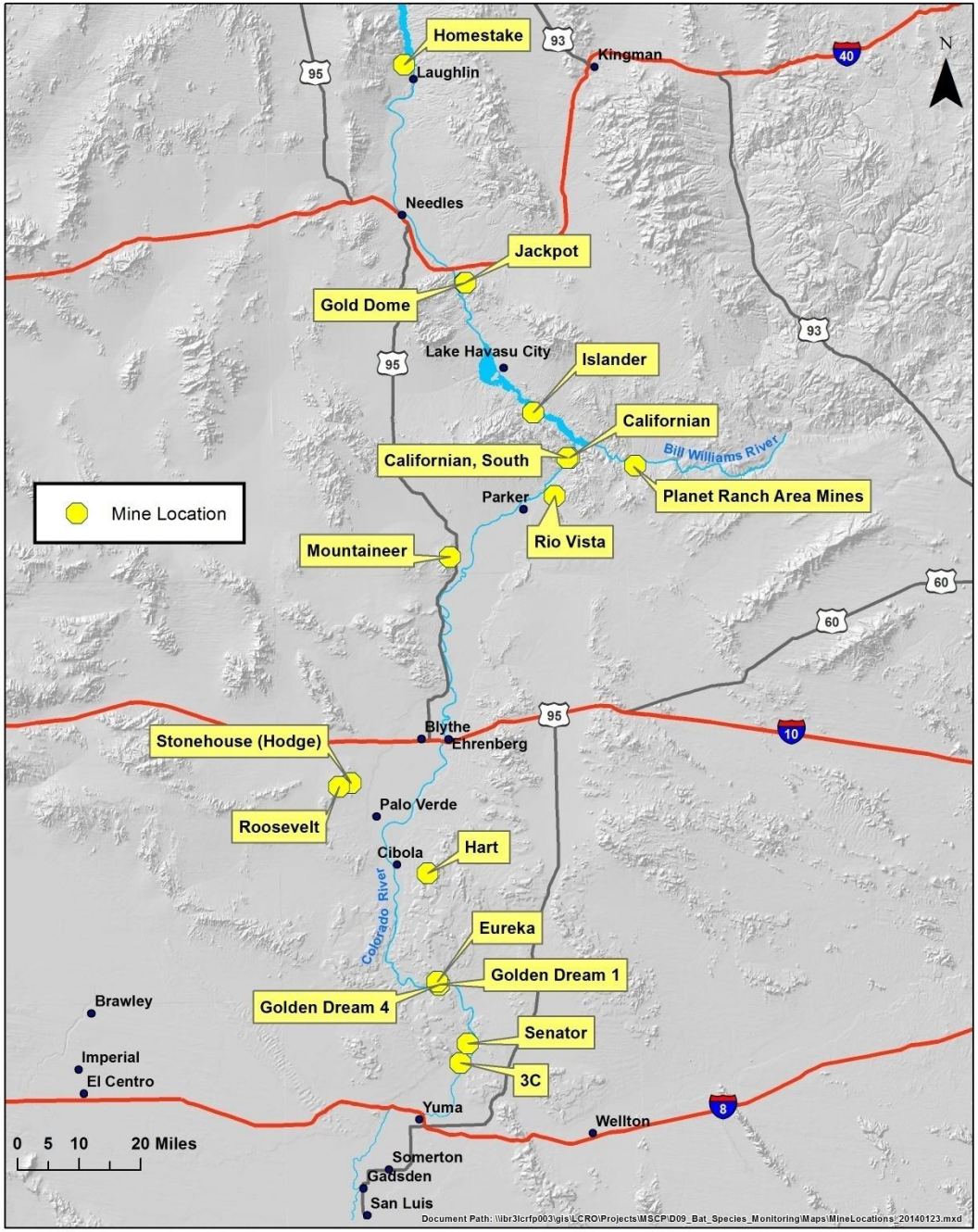
Jackpot Mine Winter Counts



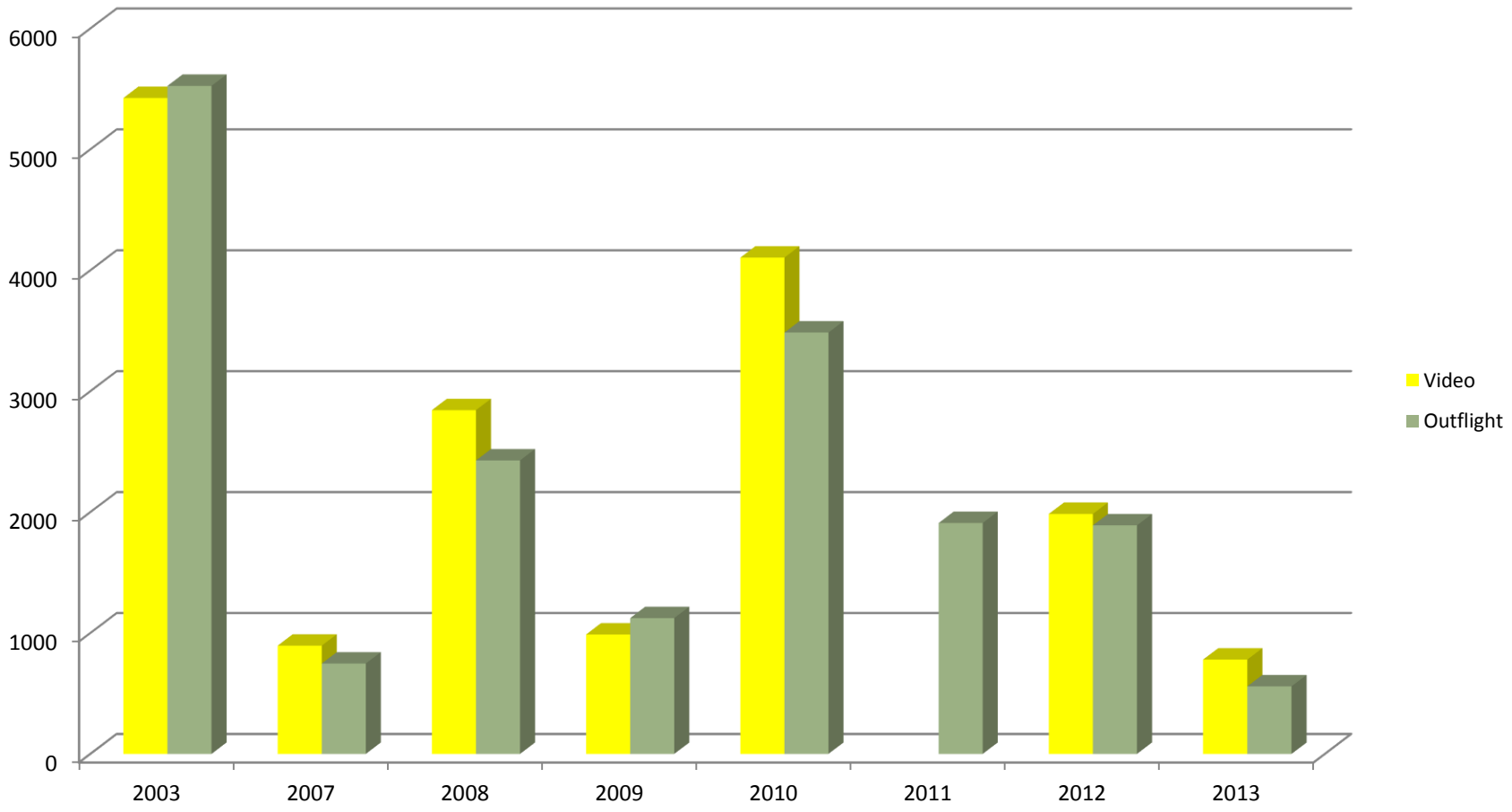
Jackpot Mine spring exit count



Mine Locations Along the Lower Colorado River



Islander Mine spring exit counts



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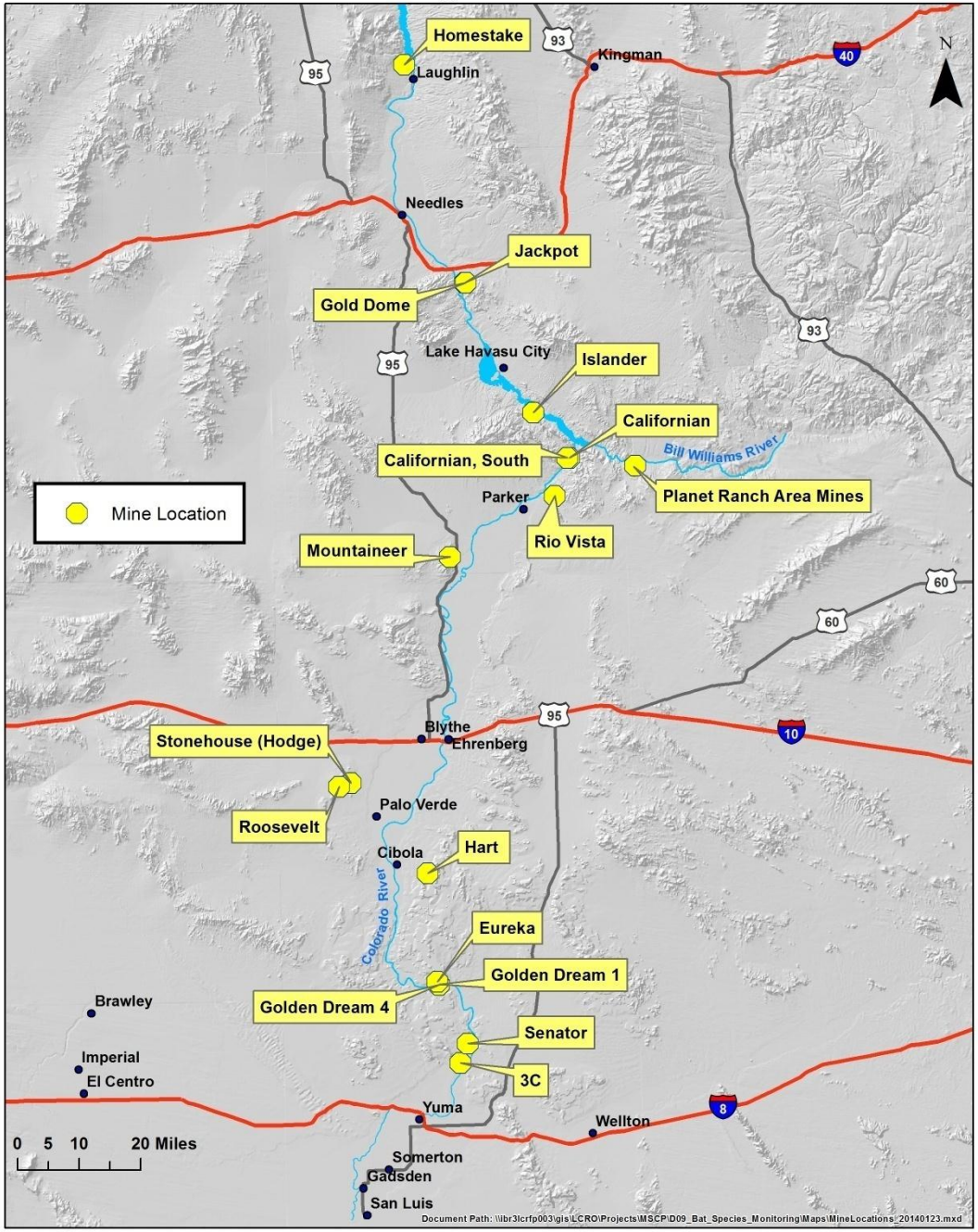
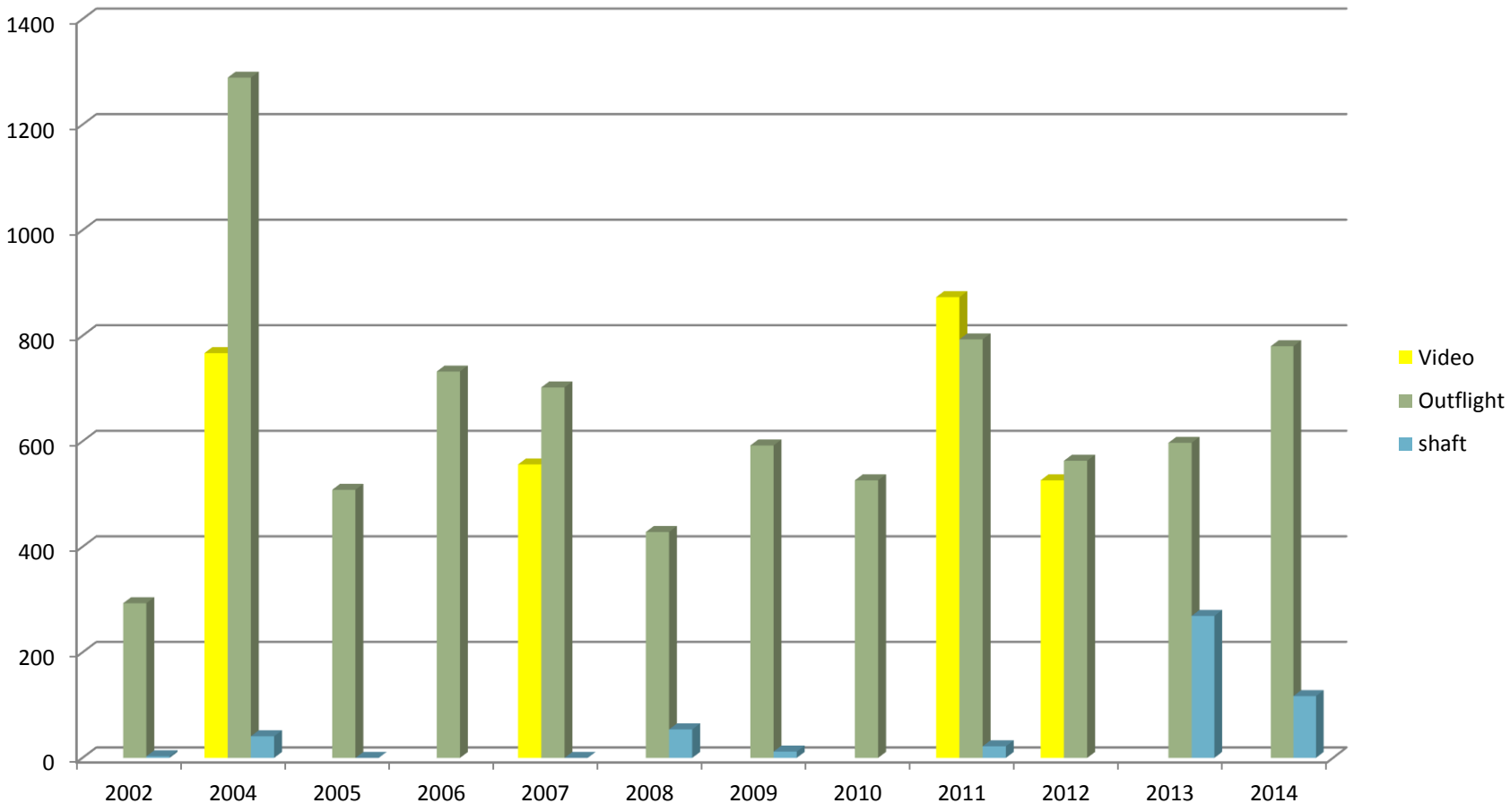
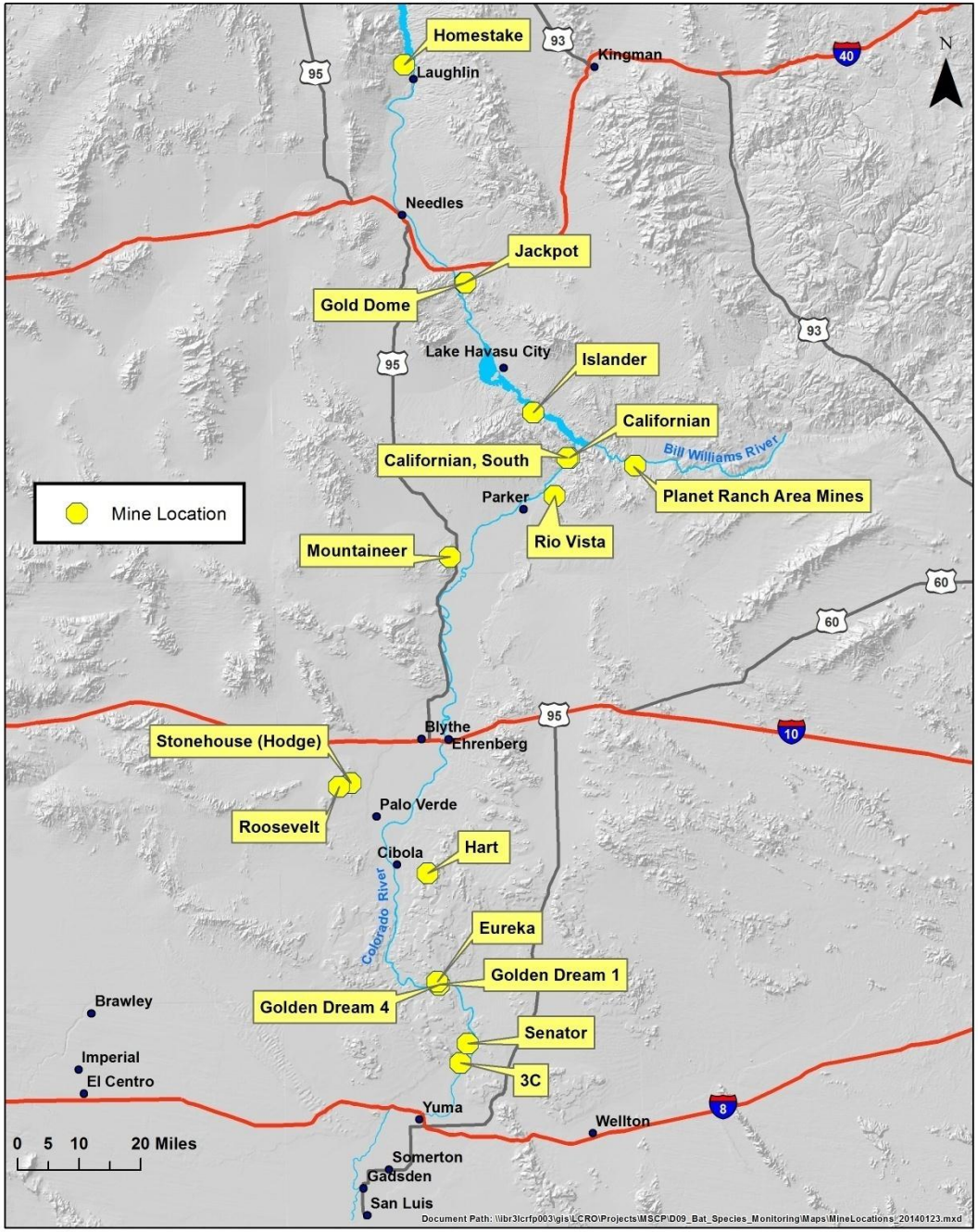


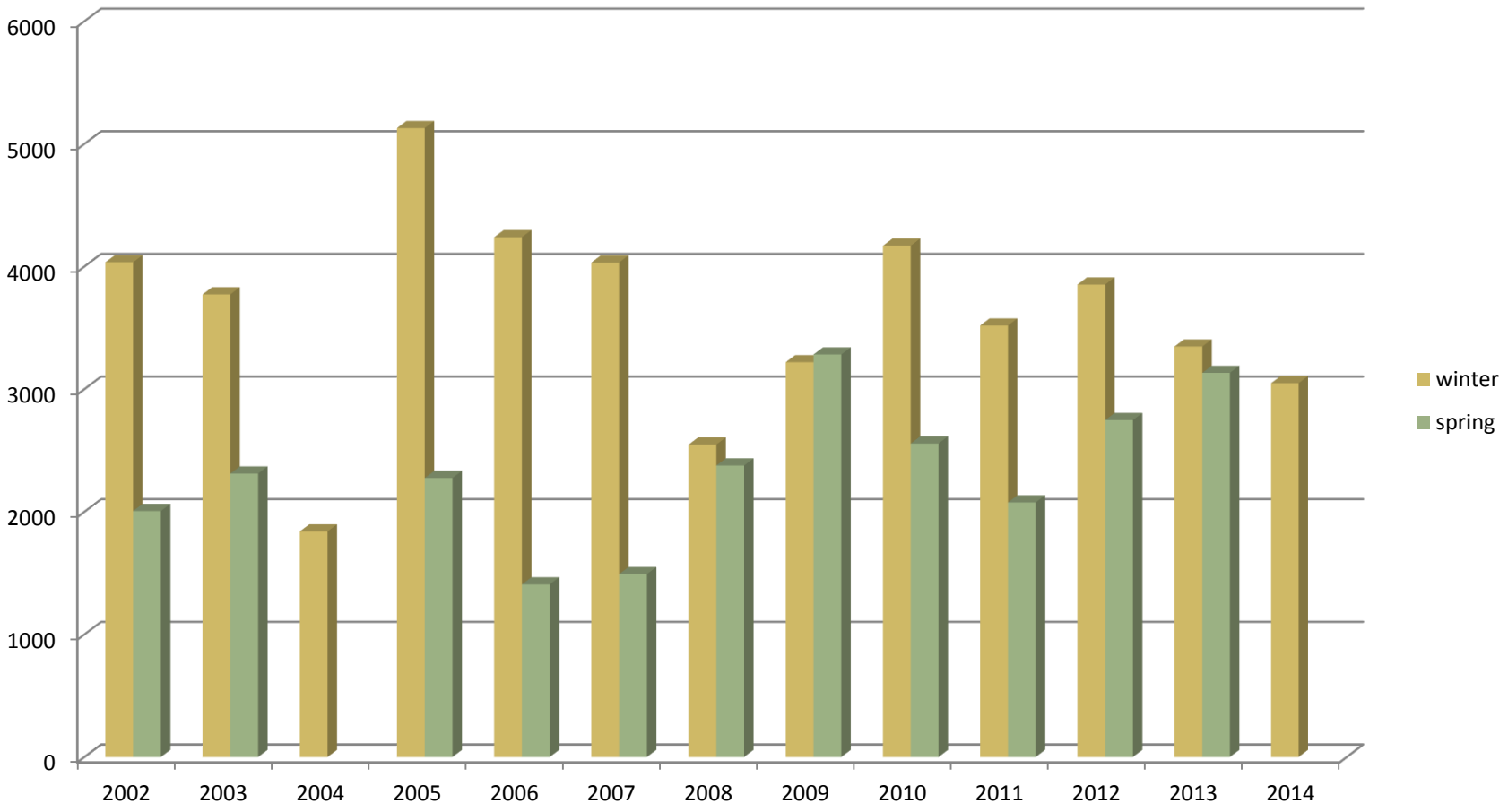
Mountaineer Mine winter exit count



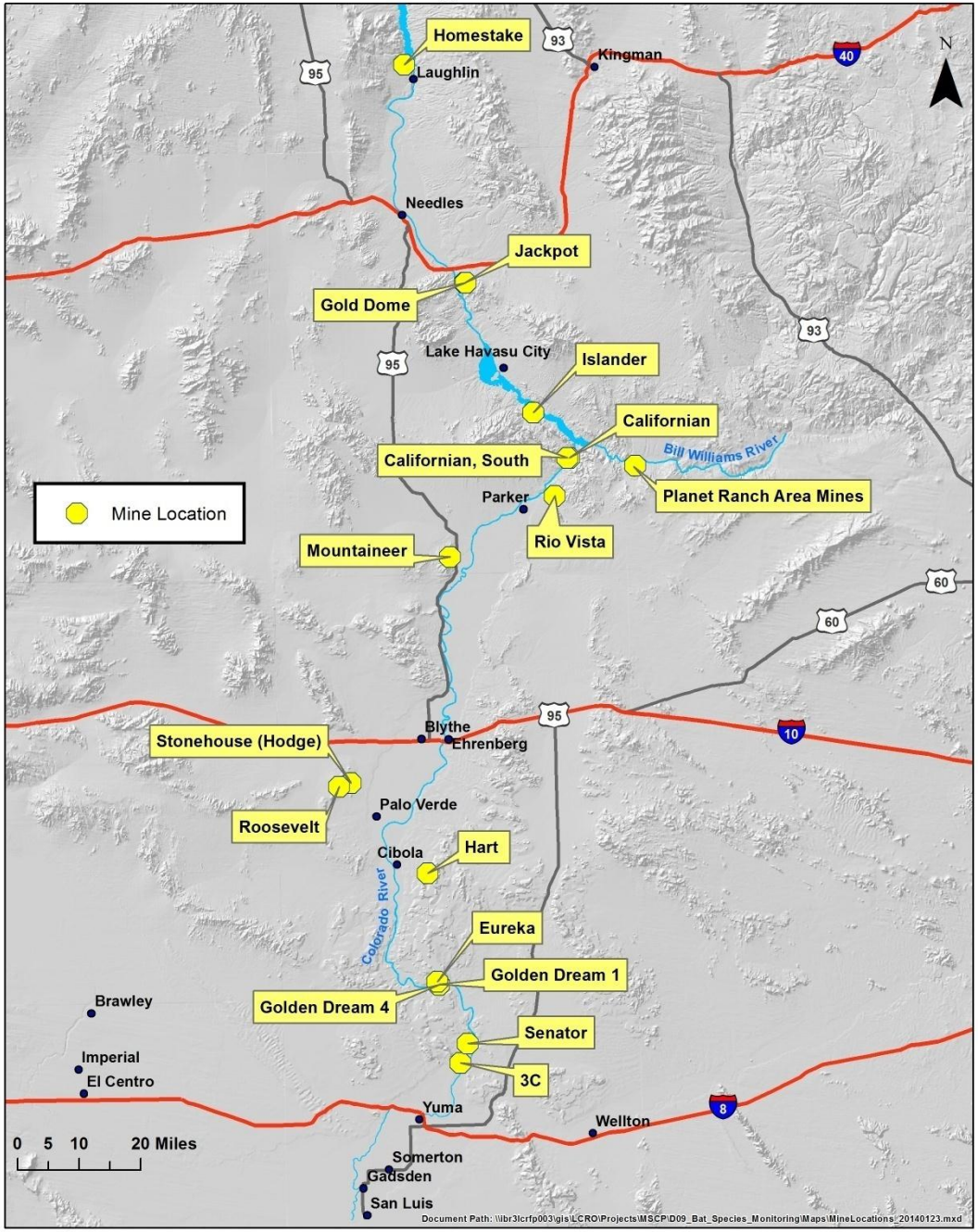
Mine Locations Along the Lower Colorado River



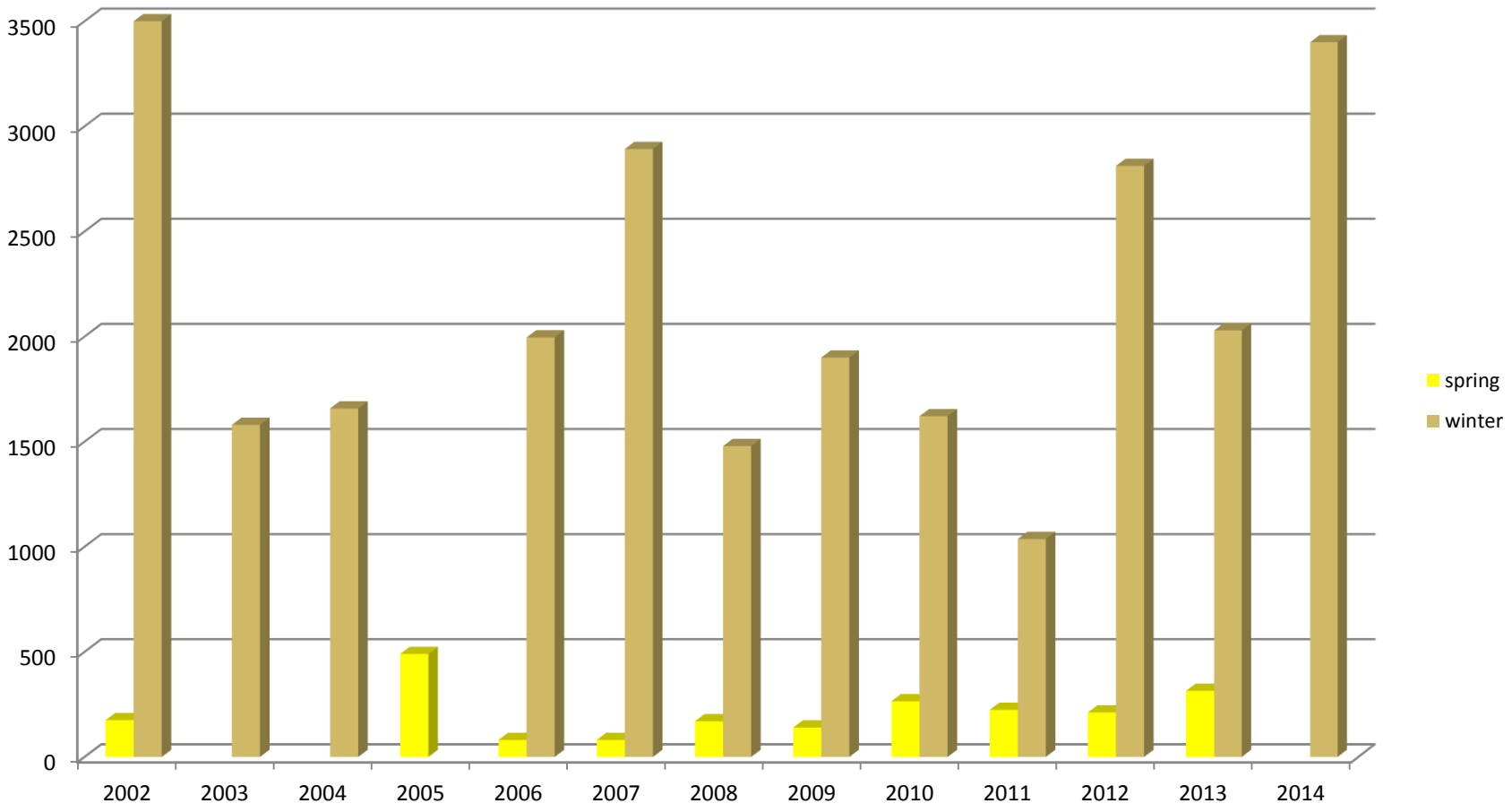
Stonehouse Mine complex winter and spring exit counts



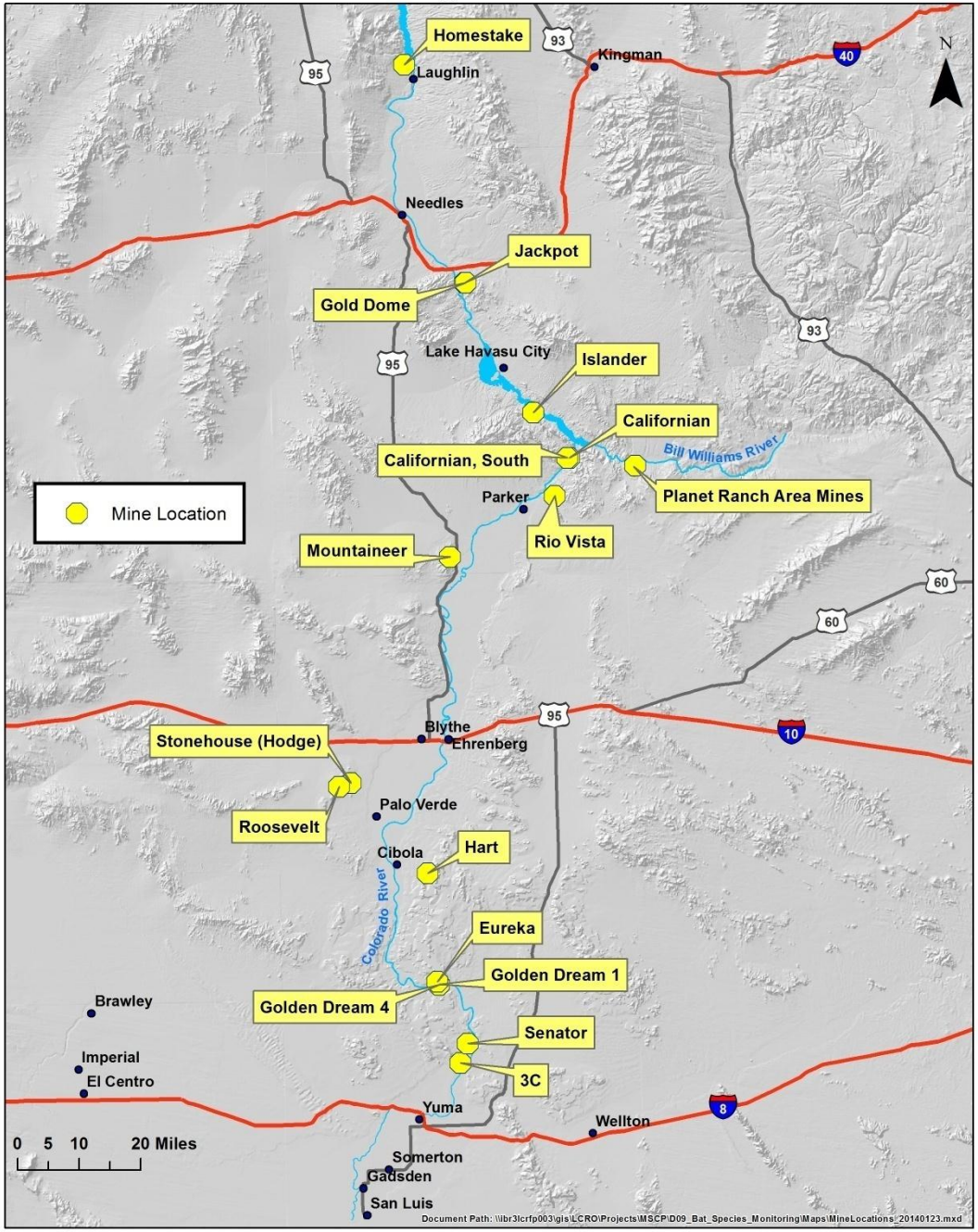
Mine Locations Along the Lower Colorado River



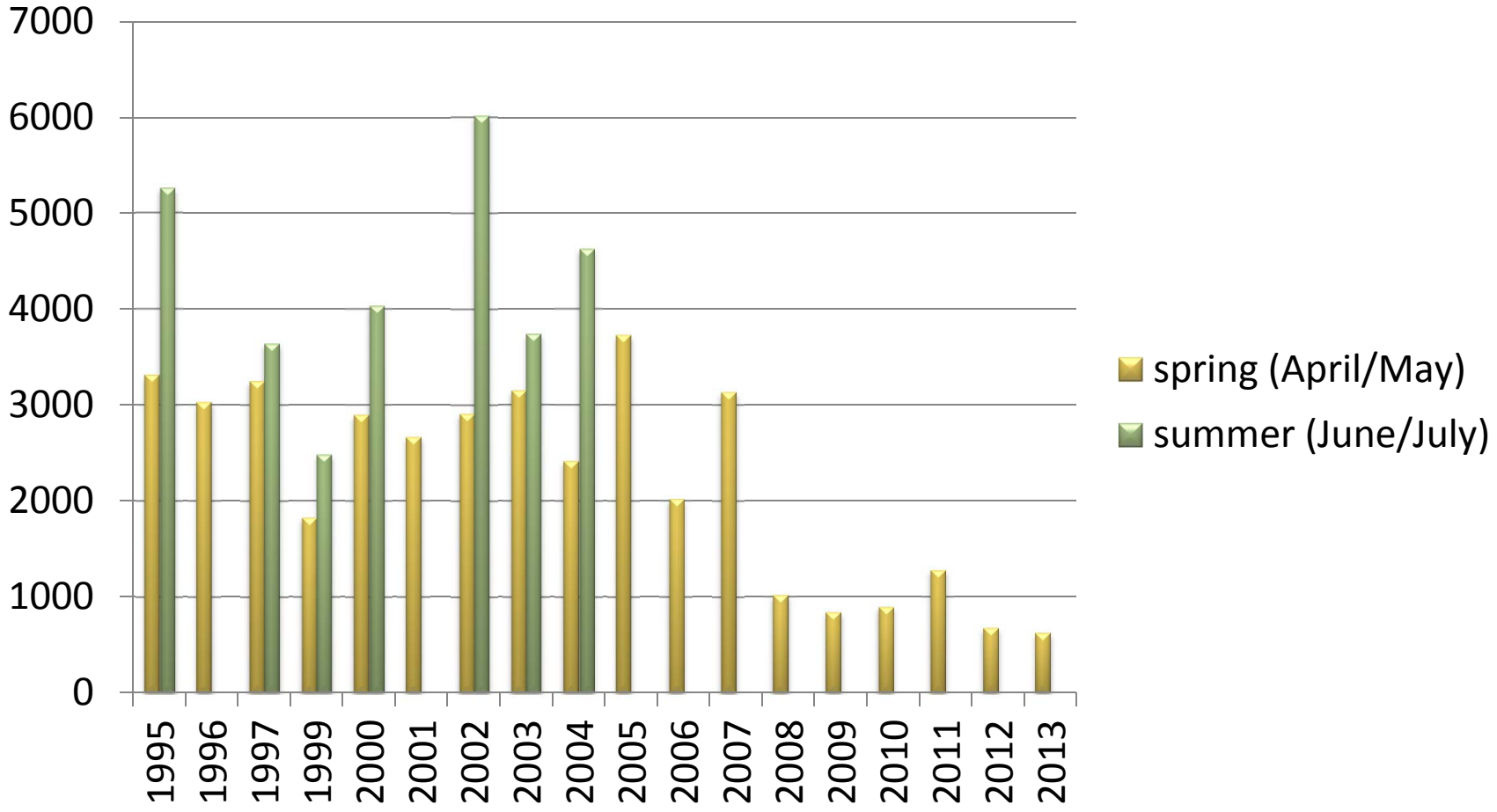
Hart Mine winter exit counts



Mine Locations Along the Lower Colorado River



Eureka Mine spring and summer exit counts



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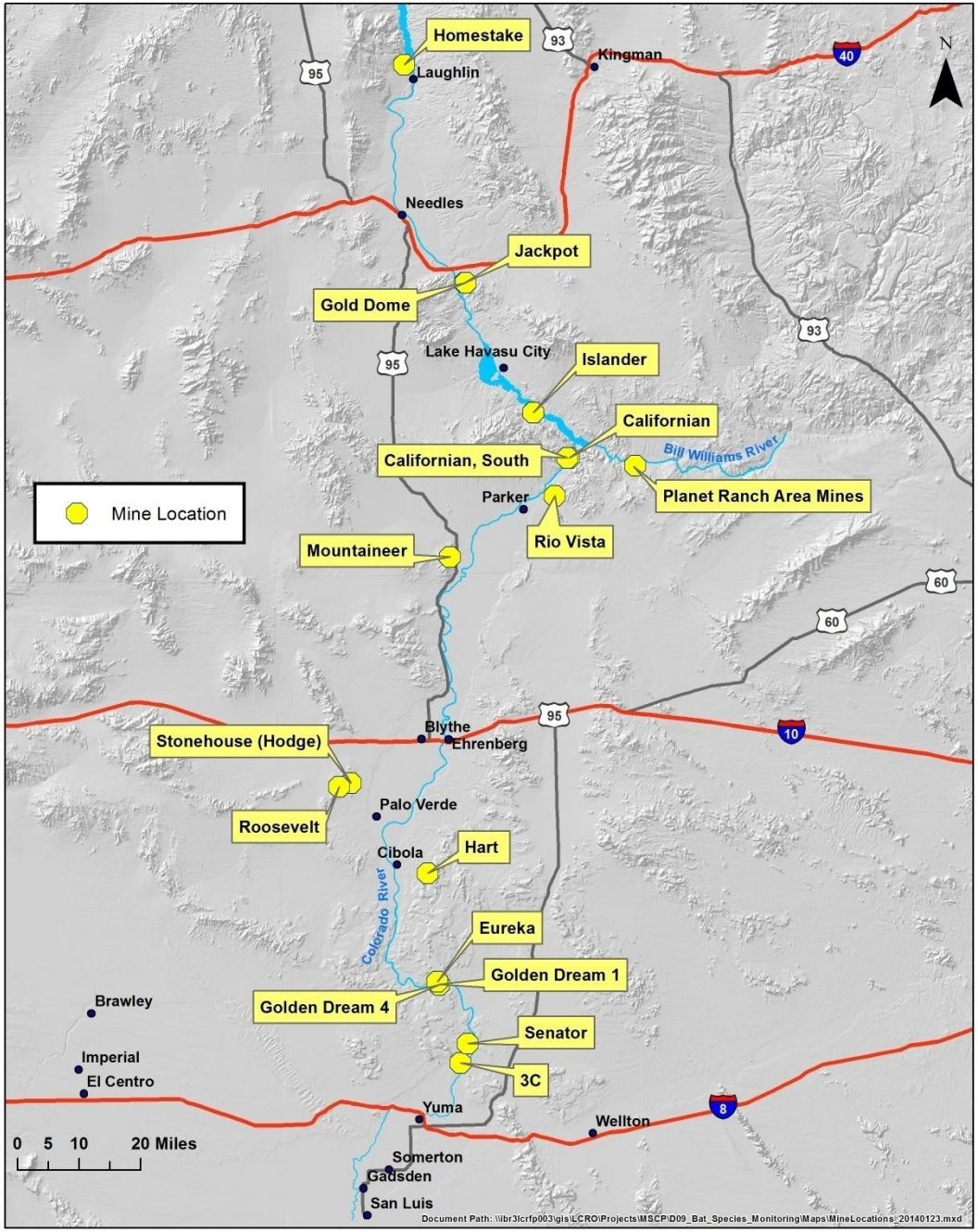
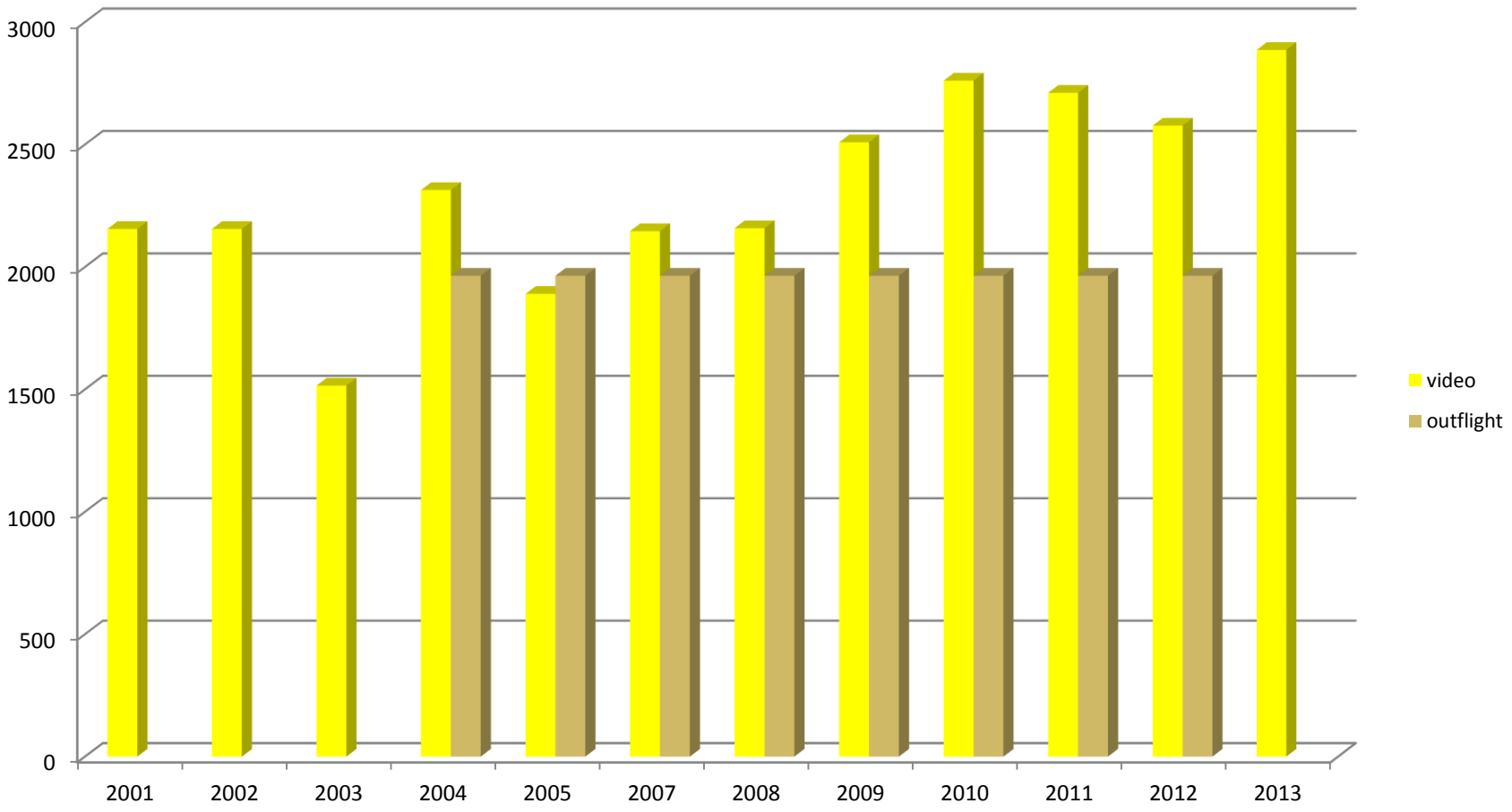
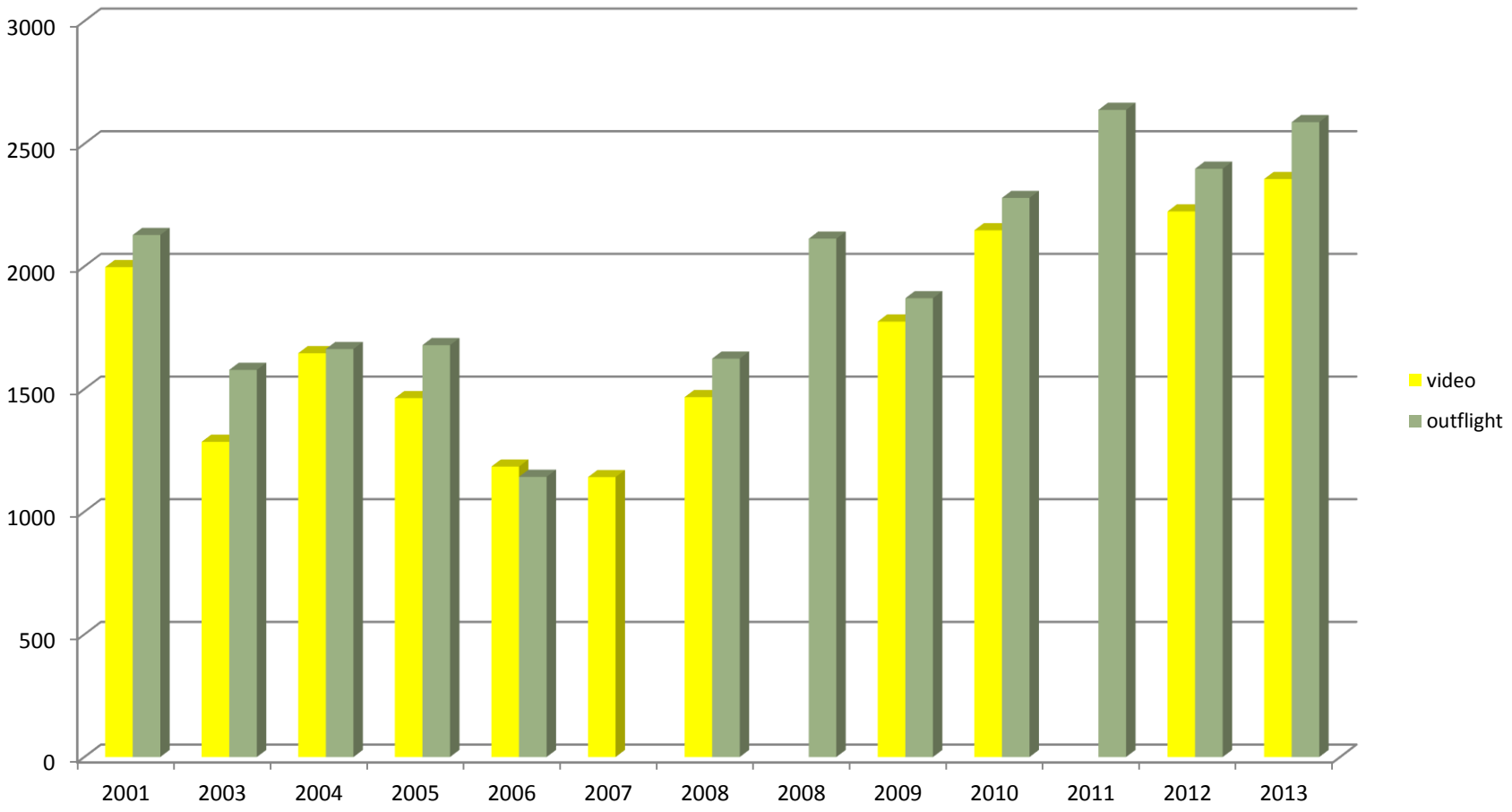


Protected Macrotus 3C Mine, Lower Colorado river

3C Mine winter exit counts



3C Mine spring exit counts



ACKNOWLEDGMENTS

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- The following people provided field assistance and/or logistical support: Allen Calvert, Theresa Olson, Carrie Ronning, Nathan Lenon, Nathan Rudd, Susan Broderick, Jeff Hill, Chris Dodge, Sean Neiswenter, Mary Ellen Given, Jenny Smith and Joe Kahl (Bureau of Reclamation); Lin Piest, Bea Vizcarra, Suzi Ehret, Dee Pfleger, Angie McIntire and Katy Hinman (AGFD); Victoria Chau and Austin Smith (CDFW); Dr. Kathleen Blair, Jan Richmond and Dick Gilbert (Bill Williams River NWR); Jennifer Burtka, Greg Wolfe, Jack Allen, James Alberti, Aimee Haskew, John Ellis (Havasu NWR); Brenda Zaun (FWS); Steven Rimer; Stephanie Goehring, Tom and Cynthia Alexander, Cindy Earle, Dominic Barrett, Rose Stoppels (Cibola NWR); Joe Barnett, Guy Wagner, Juliette Gutierrez, Ken and Peggy Edwards, Jackie and Jim Ferrier (Imperial NWR); Susanna Henry (Kofa NWR); Jen House, Erica Thoele, Angela Gatto, Christine and Greg Bates (previously of Lake Havasu BLM); Karen Harville, Alicia Rabas, Grant Harter and Jason Tinant (formerly Needles BLM); Steve Kupferman, Gavin Wright, Mark Massar, Jennifer Taylor, Cheryl and Tyler Martinez (Palm Springs BLM); Morgan Ruelle (Ridgecrest BLM); Nancy Andrews and Betsy Bolster (CDFG); Bryan Moore, Joe Barnes, Ross Haley and Tom Cullen (Lake Mead NRA); Charley Land (CRIT); Cecilia Vigil (AZ Western University); Kerrie Anne and students (AZ State Univ lake Havasu); Dr. Bill Rainey, Jim Jones, Denyse Racine, Gene Kearns, Al Kisner, Julie Landreth, Dani Ortiz, Rick Perry and Laura Stockton.

Homestake Mine
January 29, 2014