

# Relict Leopard Frog Conservation Planning and Implementation



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# USFWS and *Rana onca*

2002 Candidate species designation

2011 Multi-district litigation species

2016 Species status review

Final decision in Federal Register on October 6, 2016

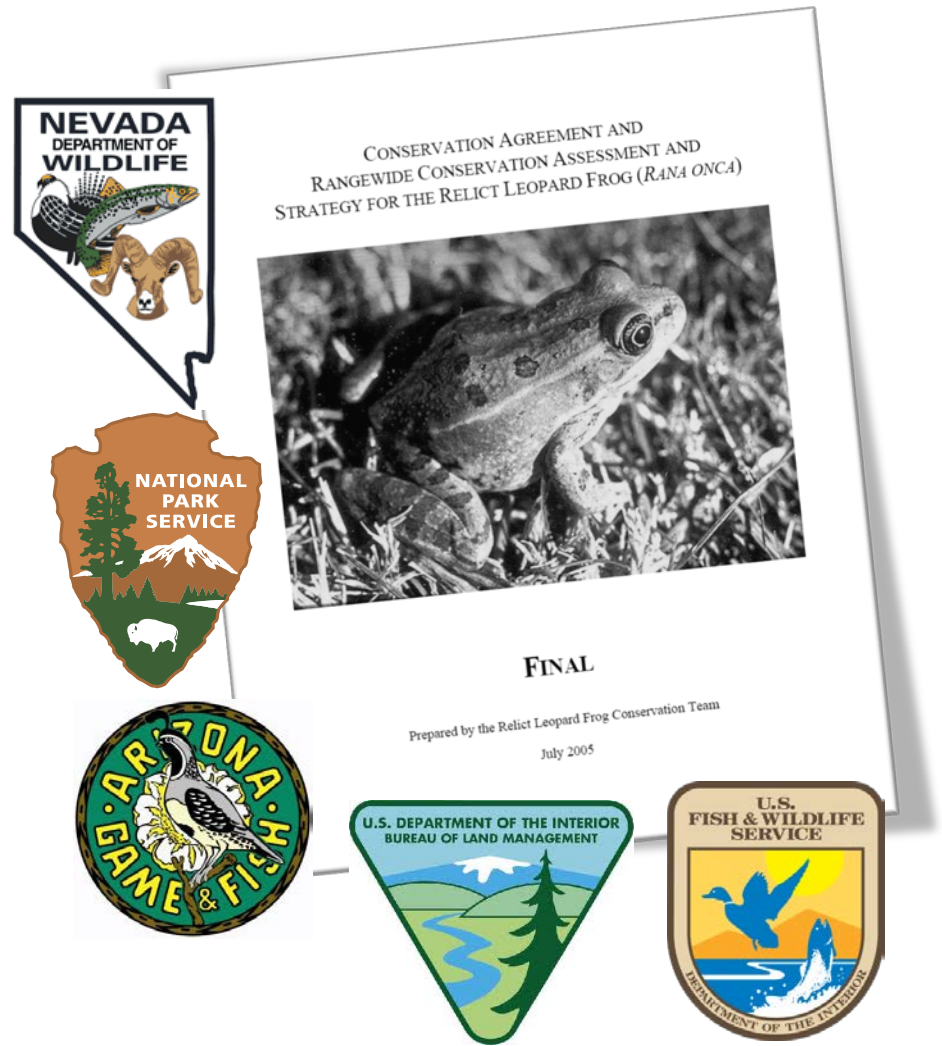
“[L]isting the relict leopard frog....under Act is not warranted at this time, and...we are removing it from candidate status.”



# Conservation Team

Interagency voluntary conservation team

- Formed 2001
- Conservation Agreement and Strategy signed in 2005
- 10-year plan and commitment



# Conservation Team

Revised and renewed  
as of Nov. 18, 2016

Objectives:

- Monitor populations
- Establish additional populations
- Enhance or create habitat
- Manage to promote sustainability
- Investigate species biology and apply findings to management

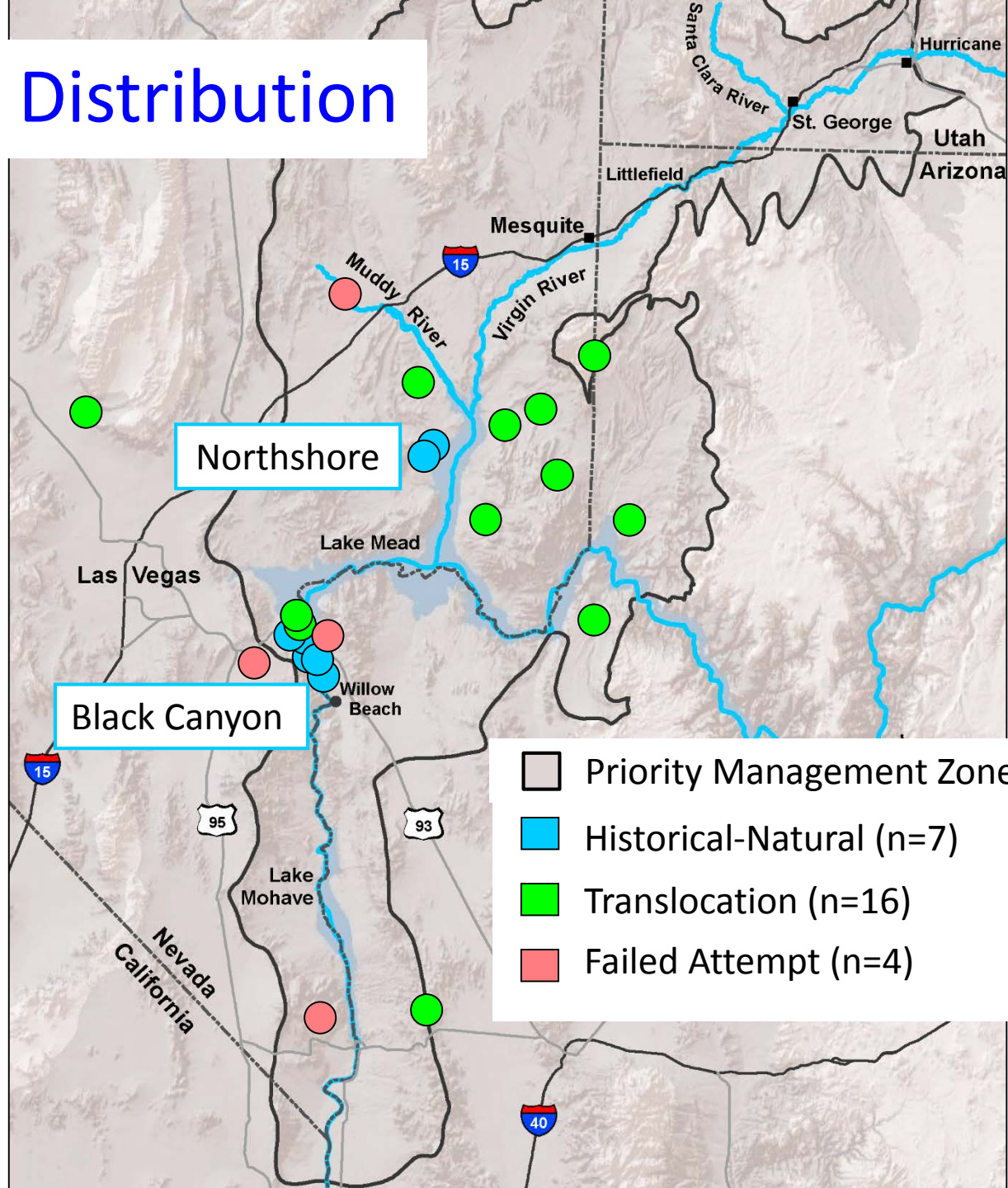


CONSERVATION AGREEMENT  
AND  
CONSERVATION ASSESSMENT AND STRATEGY  
FOR THE RELICT LEOPARD FROG  
(*RANA ONCA* [= *LITHOBATES ONCA*])



Prepared by the Relict Leopard Frog Conservation Team  
November 18, 2016

# Current Distribution



# Headstarting Facility



Lake Mead State Fish Hatchery

# Headstarting & Translocation

## 2017 season

- Released 99 tadpoles & 620 juveniles (719 total )
- Released to 2 translocation sites & 2 natural sites
- Provided 62 juveniles & 73 tadpoles (135 total) for research



# Status of Translocation Sites

Site Name	Release Years	Animals Released	Over-Winter	Breeding	Recruit.	Frog Count Spring 2017
Bearpaw	2012-16	595	Yes	Yes	–	60
Horse	2012-16	414	Yes	Yes	–	72
Lime	2012-16	436	Yes	Yes	–	13
Union Pass	2011-15	868	Yes	Yes	Yes	<b>275</b>
Perkins	2010-14	1819	Yes	–	–	–
Quail	2008-12	597	Yes	Yes	Yes	98
Tassi	2006-10	1198	Yes	Yes	Yes	<b>257</b>
Grapevine, NV	2006-07	1145	Yes	–	–	–
Red Rock	2005-10, 13-14	813	Yes	Yes	Yes	4
Goldstrike	2004-09, 13	2296	Yes	Yes	Yes	14
Grapevine, AZ	2004-09	3820	Yes	Yes	Yes	<b>144</b>
Pupfish	2003-08	541	Yes	Yes	Yes	12
Sugarloaf	2002-05	539	Yes	Yes	–	–
Wetland Park	2000-01	297	–	–	–	–



# Status of Translocation Sites

## Currently active translocations

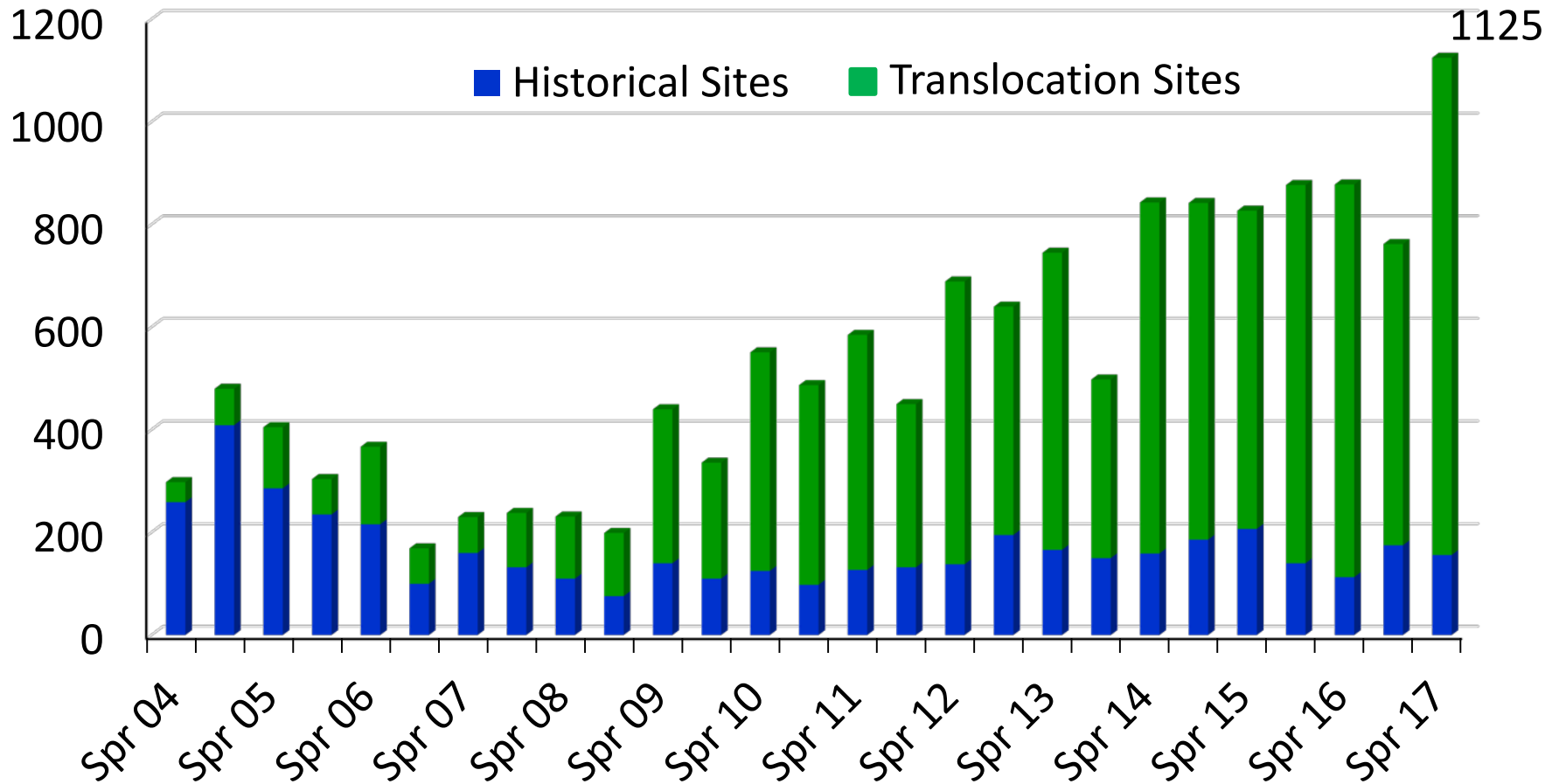
Site Name	Release Years	Animals Released	Over-Winter	Breeding	Recruit.	Frog Count Spring 2017
Kaolin Spring	2016-17	352	Yes	Yes	–	19
Corn Creek	2015-17	647	Yes	–	–	1



Major plunge pool at Kaolin Spring, May 25, 2017

# Monitoring

## High-counts of adults and juveniles



# Spring Site Assessments

Assess spring sites for potential to establish populations

- Black Mountains of Arizona – Columbine, Warm, and Burns springs
- Lake Mead NRA – Lake Mead State Fish Hatchery outflow channel
- Valley of Fire State Park, NV – Magnesite Spring



Black Mountains of AZ,  
November 15, 2016

# Habitat Management

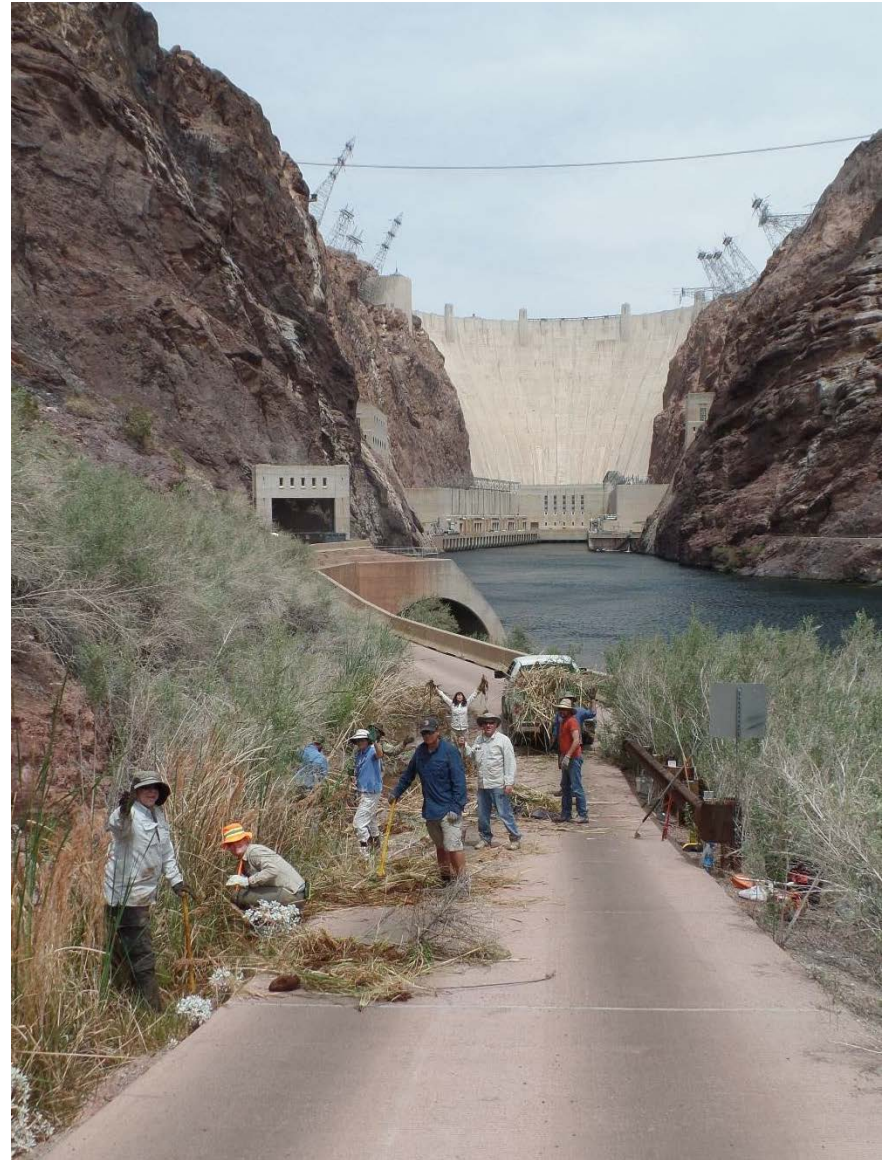
Minor component of project

- Maintain important breeding habitat

Efforts at:

- Pupfish Refuge
- Salt Cedar Canyon
- Boy Scout Canyon
- Bearpaw Poppy Spring
- Quail Spring
- Blue Point Spring

USFWS, BOR & UNLV personnel  
conducting habitat management at  
Pupfish Refuge Spring, May 9, 2017  
(Photo by J. Jaeger)



# Habitat Management

## Pupfish Refuge Spring



Drainage ditch along Portal Road, May 9, 2017

Drainage ditch along Portal Road, August 8, 2017

# Habitat Management

## Bearpaw Poppy Spring

“Alternative Spring Break”, Friends of Nevada Wilderness  
with oversight from BLM April 13, 2017



# Investigate Species Biology

## Influence of the pathogenic amphibian fungus on *R. onca*

### *Batrachochytrium dendrobatidis* and the Decline and Survival of the Relict Leopard Frog

Jef R. Jaeger,<sup>1</sup> Anthony W. Waddle,<sup>1</sup> Rebeca Rivera,<sup>1</sup> D. Tyler Harrison,<sup>1</sup>  
Silas Ellison,<sup>2</sup> Matthew J. Forrest,<sup>3</sup> Vance T. Vredenburg,<sup>2</sup> and Frank van Breukelen<sup>1</sup>

- Field – Detected *Bd* in one population of *R. onca*
- Laboratory – High overall survivorship & clearance of infection from 2 hypervirulent *Bd* isolates
- Conclusion – Suspect *R. onca* has inherent or evolved resistance to *Bd* and chytridiomycosis...
- However, stay tuned...

# Commitments

Funding to continue implementing conservation outlined in 2016 CAS into early 2019

- Complete rewrite of Protocols and Techniques Manual
- Washington Co., Utah



*R. onca* egg mass, March 2017



# Acknowledgements

- Clark County Desert Conservation Program
- Nevada Department of Wildlife
- US Fish and Wildlife Service
- Bureau of Reclamation
- Bureau of Land Management
- Arizona Game & Fish Department
- Utah Division of Wildlife Resources
- National Park Service
- Lake Mead State Fish Hatchery

We thank all members of the RLFCT and agency personnel that participated in the conservation of this species



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# Special mention of **UNLV** student volunteers and assistants, 2016-2017

Position at time of effort:

Lindsay Chiquione – UNLV employee

Jessica Hill – UNLV student

Alexandra Kosmides – UNLV student

Alexa Krauss – UNLV student

Josh Levy – UNLV student

Austin Livreri – UNLV student

Briana Patterson – UNLV student

Matthew Radar – UNLV student

Ghazal Rezaei – UNLV student

Marlai Sai – UNLV student

Shaylene Scarlette – UNLV student

Nop Subshoosang – UNLV student

Yesenia Vasquez – UNLV student

Daniel Villanueva – UNLV employee

Anthony Waddle – UNLV graduate student

Alexandra Zmuda – UNLV student

And many others over the years!



Photos credits: mostly Rebeca Rivera

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