

Applying science, planning, and partnerships to reduce roadway impacts on wildlife near Los Angeles



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Roads and Wildlife near L.A.

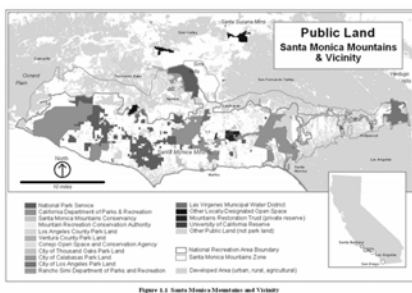
- Setting the Context: the Santa Monica Mountains National Recreation Area
- Understanding the Issues: Wildlife Conservation Science
- Reducing the Threats: Planning and Partnerships



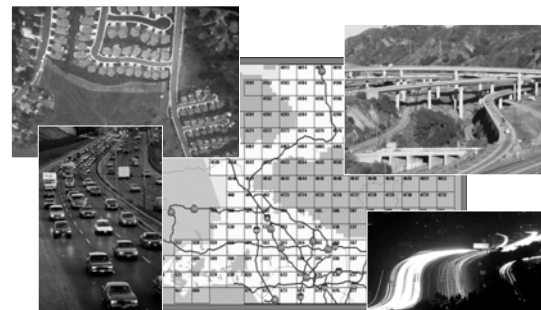
Santa Monica Mountains National Recreation Area



Ecologically fragmented & jurisdictionally fragmented



Habitat fragmentation... including fragmentation by roads



Wildlife Conservation Science

- Telemetry studies of bobcats and coyotes.
- Genetic consequences of roads.
- Monitoring highway underpasses.
- Mountain lion research.



Radio telemetry studies of bobcats and coyotes



- Female bobcats (blue) use urban areas much less than male bobcats (red and orange)



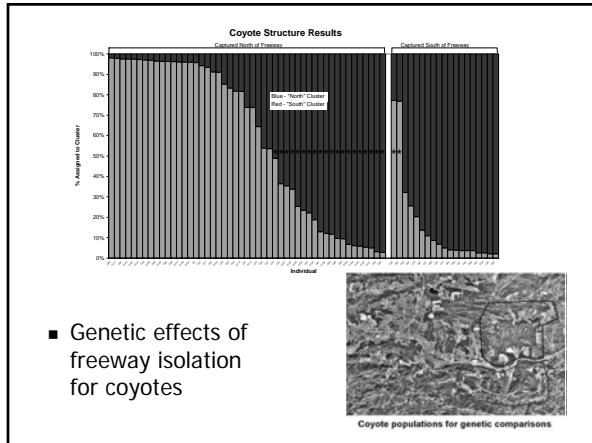
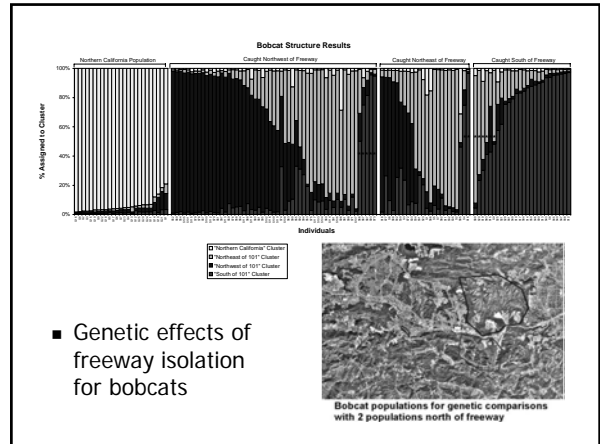
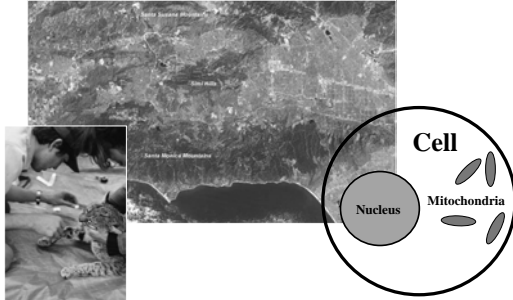
- "Urban" coyotes rely on natural areas



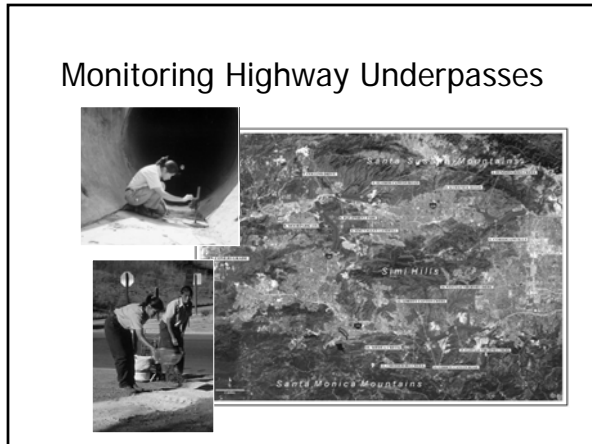
- Roads as sources of mortality



Genetic consequences of roads for bobcats and coyotes



- Territory "pile-up": animals may move across the freeway, but they don't reproduce.
 - Freeway is a physical and social barrier.
 - Migration rates may be poor indicators of gene flow
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- Existing underpasses are utilized
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- Opportunities exist to improve available options

Mountain Lion Research

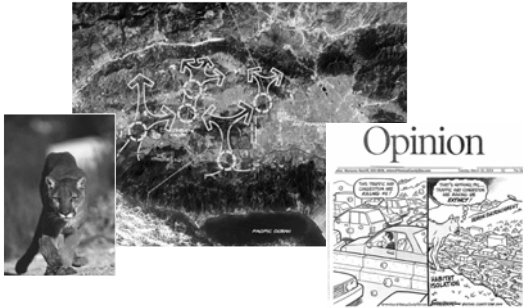
- Mountain lion home ranges are enormous and straddle transportation infrastructure

- Mountain lions readily cross secondary roads – not always successfully

- Cross-highway movements

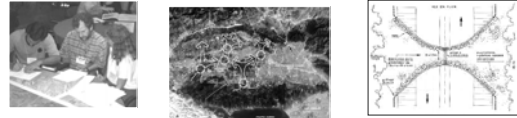
- Mountain lion crossing Highway 118 – eighteen times!

- Mountain lion survival will depend on regional connectivity and ability to cross highways



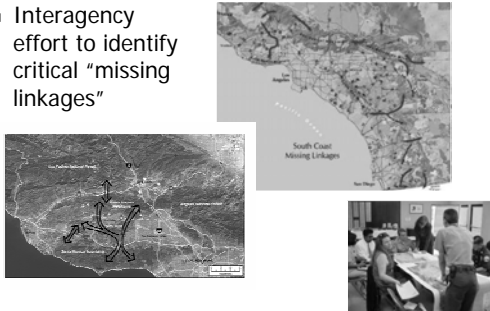
Reducing Threats through Planning and Partnerships

- Regional connectivity analyses: Missing Linkages Project.
- S.R. 118 Wildlife Corridor Working Group
- Collaborative mitigation design and monitoring.
- Constructing movement corridors?



Regional Connectivity Analyses

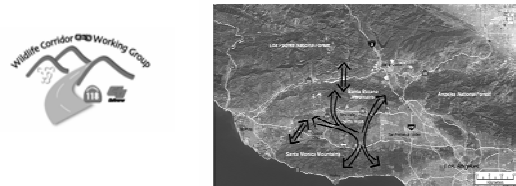
- Interagency effort to identify critical "missing linkages"



<http://www.scwildlands.org/>

Highway 118 Wildlife Corridor Working Group

"Timely delivery of safe transportation improvements while preserving and enhancing wildlife corridor integrity in the vicinity of State Route 118."



<http://www.dot.ca.gov/dist07/divisions/oep/118working/>

- Information-sharing, analysis, and planning

Species	Height	Cross-sectional Area	Openness Ratio	Sites with known use
Mountain lion	1.8 m (6 ft)	5.6 m ² (60 ft ²)	0.75	Corriganville Equestrian Tunnel (24 m ² , 256 ft ²)
Mule deer	1.8 m (6 ft)	5.6 m ² (60 ft ²)	0.75	Corriganville Equestrian Tunnel, Alamos Canyon Underpass (204 m ² , 2192 ft ²)
Bobcat	1.8 m (6 ft)	5.6 m ² (60 ft ²)	0.75	Alamos Canyon Underpass
Coyote	1.8 m (6 ft)	5.6 m ² (60 ft ²)	0.75	Alamos Canyon Underpass
Badger	0.9 m (3 ft)	2.8 m ² (30 ft ²)	0.40	Occurs in vicinity of State Route 118
Desert woodrat	0.9 m (3 ft)	0.2 - 0.8 m ² (2 - 9 ft ²)		Occurs in vicinity of State Route 118
Western toad	0.3 m (1 ft)	0.2 - 0.8 m ² (2 - 9 ft ²)		Occurs in vicinity of State Route 118



Collaborative Mitigation Design and Monitoring



- Clear culverts and install fencing

- Pre- and post-construction roadkill surveys
- 222 deaths over 34 months, including 43 coyotes (1.26 per month)



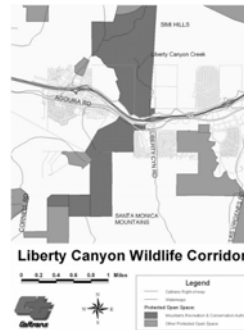
- Pre- and post-construction culvert monitoring



- Collaborative efforts to protect adjoining habitat



Constructing Movement Corridors?



Conclusions

- Wildlife viability depends on connectivity.
- Restoring connectivity requires collaborative science, interagency planning, and cooperation.



Caltrans-NPS Collaborative Projects

