A DECADE OF PROACTIVE PROGRESS IN RESOLVING HIGHWAY-WILDLIFE CONFLICTS

Norris Dodd, ADOT Environmental Services Wildlife Connectivity Program Coordinator
EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

“MISSING IN ACTION” ca. 2000

- Landmark assessment of states’ road ecology activities and strategies
- Arizona did not participate, giving the impression that little was going on, while........
EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

TRANSITIONING INTO THE “ROAD ECOLOGY ERA”

Planning the State Route 260 Project – ca. 2000

Reconstruction alternative selection and NEPA driven by the wildlife-vehicle collision issue and highway connectivity
STATE ROUTE 260 PROJECT
Planned Wildlife Underpasses & Bridges
28-km (17-mile) Stretch

- Underpasses (11)
- Bridges (6)
EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM

HEYDAY OF THE “BIG PROJECT” ERA (2000-2013)

- 3 overpasses and 3 large bridges

**State Route 68** (2000–2002)
- 3 wildlife underpasses

**State Route 260** (2000–2013)
- 11 wildlife underpasses and 6 bridges
Cementing a Commitment to Wildlife-Highway Conflict Resolution

Legal Challenges

Booth v. State of Arizona
Case - 2003

- 1998 collision with dead elk on I-40
- Trial in Pima County
- Jury awarded $4 million judgment for “negligence” – state should have better alerted motorists to risk (e.g., more signage)
- Upheld on appeal in 2004
Cementing a Commitment to Wildlife-Highway Conflict Resolution

Legal Challenges


- 2008 collision with dead elk on SR 260 (by a motorcycle)
- Trial in Gila County
- Jury rejected plaintiff’s claims of negligence by the State
- Successful defense relied heavily on 10 years of progress in addressing wildlife collisions & connectivity
**EVOLUTION OF AZ WILDLIFE-HIGHWAY PROGRAM**

**EXPLOSION OF PROJECTS AND RESEARCH**

- **2013**
  - Wildlife Highway Connectivity Construction
  - ADOT-funded AZ Game & Fish Research Projects
  - ADOT Wildlife-Vehicle Collision Reduction Studies
PLANNING FOR STATEWIDE CONNECTIVITY

Arizona’s Wildlife Linkage Assessment – 2004

- Landmark effort with ADOT/FHWA leadership
- Identified 152 linkages
- For inclusion in ADOT short- and long-range STIPs
PLANNING FOR STATEWIDE CONNECTIVITY

PUBLIC LAND LINKAGES

URBAN-INFLUENCED LINKAGES

State Route 77 Case Study

Bridge at Canado del Oro on SR-77

ADOT

PUBLIC LAND LINKAGES

URBAN-INFLUENCED LINKAGES

State Route 77 Case Study

Bridge at Canado del Oro on SR-77

ADOT
COMMITMENT TO
HIGHWAY-WILDLIFE RESEARCH

ADOT has funded cooperative Arizona Game & Fish Department research since 2001:

• ADOT Arizona Research Center
  ✓ 20 separate research projects - 11 highways
  ✓ Research on 2 highways *long term* (>10 years), under scientific experimental design (SR 260 and US 93)

• ADOT Multimodal Planning
  ✓ Installed Automatic Traffic Counters on 8 highways
COMMITMENT TO HIGHWAY-WILDLIFE RESEARCH

Research focused on 3 areas:

• Effectiveness monitoring of wildlife measures
  ✓ Support for adaptive management for continuous improvement
  ✓ 4 highways

• Data-driven recommendations for passage structures and fencing on future projects
  ✓ 7 highways
  ✓ 38 underpasses, 15 overpasses, 237 km (146 mi) ungulate fence

• Understanding of complex ecological relationships
ADOT’s ENVIRONMENTAL STEWARDSHIP ROLE

US 89
Pronghorn Study (2005)

• First commitment by ADOT to a connectivity project *without* a wildlife-vehicle collision issue

• US 89 a near-total barrier to pronghorn passage (only 2 of 37 crossed)

No pronghorn-vehicle collisions in 20 years
ADOT’s ENVIRONMENTAL STEWARDSHIP ROLE

Pronghorn approaches to US 89

Best location for future passage structure
PRIORITIES FOR ADDRESSING WILDLIFE-HIGHWAY CONFLICTS

- Highway with combined 1,240 km significant safety & connectivity issues
- Highway reconstruction 75 km completed since 2000 (6%)
- Highway planned 400 km for future reconstruction (32%) (10-25 years)

Retrofitting constitutes a viable alternative to limited highway reconstruction
Underscore the importance of comprehensive regional conservation planning in Pima County and funding through its *Regional Transportation Authority* which is partnering with ADOT in the wildlife elements of the SR 77 and SR 86 widening projects.
Visionary Conservation Planning and Community Support Bring $45 Million in Assured Funding to Wildlife Linkage Infrastructure in Pima County, Arizona

Carolyn Campbell, Executive Director
Sonoran Desert Conservation Plan

- Originated with ESA listing of cactus ferruginous pygmy owl in 1997
- Vision and goals adopted by Pima County in 1998
- Base future land-use planning on science
- Six Main Elements
  - Habitat, Biological, and Ecological Corridors
  - Critical and Sensitive Habitat
  - Riparian Restoration
  - Cultural and Historical Preservation
  - Mountain Parks
  - Ranch Conservation
Open Space and Habitat Preservation

Pima County voters approved a $174.3 million bond package for open space in 2004.

A new open space bond, totaling at least $120 million, is under development for 2014.

Photo by Bob Wenrick
Vision for the future – existing Pima County open space with future Habitat Protection Priorities
Regional Transportation Authority Plan

- State law passed in 2003 allowing the Pima County RTA to develop a plan and levy a sales tax.
- Requires all 9 local jurisdictions to work cooperatively on transportation projects throughout region.
- 35-member Citizens’ Advisory Committee helped develop plan over 10 months, starting in 2004.
- Public outreach and education to voters.
- Final plan-$45 million for wildlife linkage projects.
- Approved by voters in 2006 with 66% of vote.
- Funded by ½-cent sales tax over 20 years.
- Working Groups formed to oversee various elements.
RTA Wildlife Linkages

- $45 million over 20 years
- Wildlife Linkages Working Group created to review funding proposals and guide fund disbursement
- Only local jurisdictions and state agencies (ADOT and AZGFD) can receive funding
- Series of higher-level committees, including RTA Board, must also approve proposals
Wildlife Linkages Research

- Sonoran Desert culvert and fencing design
- Roadkill surveys to guide crossing placement on multiple roadways
- Pre- and post-construction monitoring
  - Ongoing challenge to convince higher level RTA committees to approve
- Pima County Wildlife Linkages Assessment
Wildlife Crossings

- State Route 77 – one large underpass and one large overpass, with fencing
- State Route 86 – two large underpasses and one large overpass (needs future approval), with fencing
- Underpasses along smaller regional roadways
  - Typically built during road widening projects
- Bridges and bat habitat
RTA Projects

Construction

Research

Map courtesy Google
State Route 77 Overview

- Major barrier to wildlife movement between the Santa Catalina and Tortolita Mountains
- Original proposal was for two underpasses and one overpass
  - Southernmost underpass dropped from project in 2012 to utilize 2 already-constructed large underpasses with added fencing
- $8.2 million approved in 2009
- Additional $3.1 million approved in 2012
- Technical Advisory Committee has advised ADOT on crossing & fencing design and adjacent land use issues
Aerial view of SR77 wildlife overpass looking west at Tortolita Mountains

State Route 77
State Route 77 Challenges

- Complex adjacent land ownership
- Permanent protection of nearby State Trust Land, a critical piece of the wildlife linkage
- Funding of pre- and post-construction monitoring
- Establishing responsibility for future maintenance of crossings and fencing
- Managing stakeholders, partnerships, and public input
State Route 77 – Looking Forward

• Integrated into State Route 77 road widening project – 4 lanes widened to 6 divided lanes
• Construction beginning in late 2013
• Constructed by ADOT
• Still seeking funding for more robust post-construction monitoring