Mosaic Fertilizer’s Wellfield: Habitat Restoration, Conservation & Growing the Florida Scrub Jay

Mosaic Fertilizer, LLC.
Sandra Patrick
Grant Lykins

Archbold Biological Research Station
Dr. Reed Bowman

Quest Ecology Inc.
David Gordon
Lauren Deaner
Listed as Threatened by USFWS (ESA) in 1987
Threatened due to habitat loss from land use conversion, habitat fragmentation, and degraded habitats due to fire exclusion
Florida Scrub Jay Habitat

- Dry sandy upland with an open herbaceous stratum
- Dominated by low growing (<10 feet) scrub oak shrubs
- Lacks or has low (<15%) forest canopy
- Vegetation structure maintained with periodic prescribed fire every 5-20+ years.
Florida Scrub Jay Ecology

• Habitat Specific
• Monogamous family groups
• Defend territories year round
• Juveniles become helpers and aid the family group with territory defense and feeding
• Helpers typically form pair bonds at 2-4 years
A Statewide FSJ survey conducted in 1992-1993 found 63 groups in the M4 Metapopulation (now Genetic Unit (GU) F. In 1999: 33 Jays in 13 groups + 1 single jay (22% of Metapopulation).
Mosaic Donor & Recipient Sites
Why Translocation?

- Source population (14 FLSJ families in 6 subpopulations) on Mosaic land permitted for take under ESA
- Population Modeling indicated a high extinction probability of jays due to fragmentation, and habitat degradation in existing locations.
- Restoration, preservation, and successful translocation of FLSJs to a recipient site in the core of the metapopulation (Mosaic Wellfield) had the greatest chance to reduce the effect on the extinction risk of the entire FLSJ metapopulation.
Development of Mosaic’s Florida Scrub Jay Habitat Management Plan

(Southern Hillsborough and Manatee Counties)

OBJECTIVES

1. Identify/quantify the baseline FSJ population condition
2. Determine which jay families at immediate risk of extinction
3. Provide mitigation for proposed impacts
4. Coordinate with adjacent land owners to conduct management of FSJ habitat in M-4
6. Implement experimental translocations of at risk, isolated Florida Scrub Jays (Translocations 2003 -2013)
Mosaic’s scrub-jay banding program

Scrub Jays banded between 1999 – 2001
Jays are banded as needed since 2001
Mosaic Wellfield Scrub Habitat Management Units
Mosaic Wellfield Scrub Habitat Management
Pre-Restoration
Mosaic Wellfield Scrub Habitat Management
Roller Chop/Mull
Mosaic Wellfield Scrub Habitat Management
Prescribed Burning
Mosaic Wellfield Scrub Habitat Management
Other Management Photos

October 2002

January 2003
Mosaic Wellfield Scrub Habitat Management
Other Management Photos
Translocation Methodology - Based on Mumme and Below (1999)

- Move jays in February prior to breeding season
- Move non-breeders and excess helpers
- Move birds into habitat with large (>10 families) carrying capacity, and
- Remain in hacking cages for 5 days prior to release
- Added radio-transmitters on all jays
Translocation Methods: Acclimation & Trapping

Real Traps

Dummy Traps
Translocation Methods:
Band, Data Collection & Transmitter
Translocation Methods:
Transport, Feed & Release
Acclimate
Recapture & Final Release
Radio Telemetry Tracking Begins
Scrub-Jay Population

Summary Totals

HMP Approved. Habitat Management Begins 2001

Baseline

Individuals at Site (Post-translocation)

Breeding pairs/families (Post-translocation)

Translocated Jays

Total yearly number of Florida scrub-jays, breeding pairs/families, and translocated jays in July between 1999 and 2008.
Method Changes

- **Timing** – Despotic behavior at minimum in Dec; Feb exhibits peak in territory behavior
- **Reduce hacking duration** – reduce stress
- **Candidate Jays** – move whole family groups vs. helpers

Photo Credit: Lauren Deaner

- 2008: Moved jays in November - January instead of late February;
  - Duration of hacking periods reduced from 5 to 1-2 days

- 2009: First family group translocated; moved in December
## Territory Establishment Results

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Jays Translocated</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>No. of Jays that Est. or became part of an Est. Territory</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Percentage of Jays</td>
<td>29%</td>
<td>50%</td>
<td>25%</td>
<td>33%</td>
<td>80%</td>
<td>70%</td>
<td>83%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Translocation Methods Modified: 35% 81%
Recipient Site Demographics

Jay Groups as of April 2011

Duette Preserve

Wellfield

SWFWMD
What is a Successful Translocation?

- Jays that remained on the recipient site or adjacent public lands for 1 year post-release
- Jays that attempted to breed
- Jays that actively defended a territory as a helper of a breeding group
Successful Translocation Results

- 46 of 51 jays remained on MW / DP after 8 weeks post-release - 90% success
- Average survival from 6 months to 1 year is 70% (29 of 51 were 1st year birds)
- 23 groups attempted to breed & 14 fledged 39 young
- 81% of jays actively defended a territory as a helper of a breeding group (since methods change)
Current Distribution of Jays
July 2011

- 25 groups (82 jays) = 3.28 jays per group on Mosaic Wellfield (10 groups) and Duette Preserve (15 groups) that contain a translocated jay or descendent
- 88% breeding in 2011
- 1 additional pair (2 jays) on Manatee River State Park (no juveniles documented in 2011)
- Total Subpopulation - 26 groups (84 jays) = 3.23 jays per group
During 2011 breeding season, 23 groups attempted to breed & 14 successfully fledged 39 young.
CONCLUSIONS

- Mosaic translocations have stabilized and grown the regional scrub jay population
- Increased the rate of natural immigration
Questions?

Photo Credit: Lauren Deaner