"What is success in bat rehabilitation?"

Adam Grogan
RSPCA Wildlife Department
We collect data on all admissions.
Each animal has a unique number and we record a number of variables on each.
These data then allow us to investigate if there are predictors of success to aid prognosis.
This allows us to make decisions earlier to prevent further suffering.
Bat Admissions to RSPCA Wildlife Centres 2005 - 2010

- Barbastelle bat: 989
- Bechstein's bat: 20
- Brandt's bat: 51
- Brown long-eared bat: 4
- Daubenton's bat: 1
- Grey long-eared bat: 14
- Leisler's bat: 2
- Nathusius pipistrell bat: 6
- Natterer's bat: 18
- Noctule bat: 9
- Pipistrellus spp bat: 133
- Serotine bat: 1
- Whiskered bat: 20
Pipistrellus spp. (989)
Reasons for admissions 2005 - 2010

- Abnormal Behaviour: 8.90%
- Grounded: 14.86%
- Injury (cause uncertain): 3.84%
- Orphan: 18.30%
- Other: 21.33%
- Weakness: 16.08%
- Attacked by animal: 16.68%
Pipistrellus spp. (989)
Outcomes 2005 - 2010

- Released: 37.82%
- Died: 35.09%
- PTS: 22.24%
- Other: 3.84%
- Unknown: 1.01%
Pipistrellus spp. (989)
Reasons for admissions and outcomes

- Abnormal Behaviour
- Grounded
- Injury (cause uncertain)
- Orphan
- Other
- Weakness
- Attacked by animal

Legend:
- Died
- Other
- PTS
- Released
- Unknown
Decision making – what to treat

- Consider the possible affects of treatment and time in care – minimise further suffering
- Is the animal very seriously injured or in immediate need of veterinary care? (Multiple injuries give a poor prognosis)
- Euthanase all bats with compound # radius/ulna, humerus, (not fingers)
- Euthanase all bats with COMPLETE WING membrane tears
  
  Note: partial tears or holes (small or large) in wing membrane and tail membrane have good release rates and should be referred to Wildlife Centre.
Complete tear?
Partial tear
Other considerations

• Details of where found are essential
• Unweaned pups require specialist facilities and staff with the necessary skills and experience.
• Breeding status (lactating females need to be returned quickly)
• Sex (note: females in early spring may be pregnant)
• Time of year (males in autumn can be difficult to feed). All bats are difficult to feed closer to hibernation.
So what is success?

• Just keeping an injured animal alive?
• Animal Welfare Act – meeting the animal’s needs?
  ▶ Bats live in colonies – effects of isolation?
  ▶ Inability to fly? To breed?
• A life worth living:
  ▶ Inference is that an animal that does not have a life worth living – from the animal’s point of view – is better off dead.
• Educational animals – the 3Rs
  ▶ Replacement
  ▶ Reduction
  ▶ Refinement
More than just survival -

• We believe its more than this; success includes:
  ➢ Minimising suffering - Good triage, inc. euthanasia, are important tools to help reduce suffering
  ➢ Release and post release survival – how long should they survive – longer 48 hours! - integration
Post release monitoring

• To investigate the survival of rehabilitated animals:
  ➢ Can they survive?
  ➢ Can they find roost sites?
  ➢ Can they forage?

• We use methods to help us record the movements of individuals, such as ringing and radio tracking.

• This allows us to test the treatment, rehab and release given to individual animals.

http://www.rspca.org.uk/sciencegroup/wildlife/currentresearch
“Orphan” pipistrelles

• Admission Details
• Triage
  ➢ Rehydration
  ➢ Euthanasia?
• Examination for
  ➢ Injury
  ➢ Condition
  ➢ Parasites
• Take measurements
Release

- Individually test flown prior to release
- Bats self released from bat box on outside of bat flight
- Released in groups
- Support fed if return to bat box
But does it work?
### Results for bats released in 2007

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>Ring No.</th>
<th>Admission Weight (g)</th>
<th>Release weight (g)</th>
<th>No. of nights tracked</th>
<th>Fate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z3283</td>
<td>2.7</td>
<td>5.2</td>
<td>10</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z3288</td>
<td>2.9</td>
<td>6.0</td>
<td>8</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z2945</td>
<td>2.7</td>
<td>4.5</td>
<td>1</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Common</td>
<td>Male</td>
<td>Z3255</td>
<td>2.2</td>
<td>4.3</td>
<td>2</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Common</td>
<td>Male</td>
<td>Z3259</td>
<td>2.6</td>
<td>5.1</td>
<td>4</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Soprano</td>
<td>Female</td>
<td>Z3263</td>
<td>1.9</td>
<td>4.8</td>
<td>4</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Female</td>
<td>Z3278</td>
<td>1.4</td>
<td>5.2</td>
<td>10</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Female</td>
<td>Z2939</td>
<td>2.3</td>
<td>5.1</td>
<td>6</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Male</td>
<td>Z3251</td>
<td>1.9</td>
<td>4.9</td>
<td>4</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Male</td>
<td>Z3281</td>
<td>2.3</td>
<td>4.8</td>
<td>6</td>
<td>Lost signal</td>
</tr>
</tbody>
</table>
# Results for bats released in 2007

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>Ring No.</th>
<th>Admission Weight (g)</th>
<th>Release weight (g)</th>
<th>No. of nights tracked</th>
<th>Fate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z3283</td>
<td>2.7</td>
<td>5.2</td>
<td>10</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z3288</td>
<td>2.9</td>
<td>6.0</td>
<td>8</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Common</td>
<td>Female</td>
<td>Z2945</td>
<td>2.7</td>
<td>4.5</td>
<td>1</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Common</td>
<td>Male</td>
<td>Z3255</td>
<td>2.2</td>
<td>4.3</td>
<td>2</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Common</td>
<td>Male</td>
<td>Z3259</td>
<td>2.6</td>
<td>5.1</td>
<td>4</td>
<td>Retrieved</td>
</tr>
<tr>
<td>Soprano</td>
<td>Female</td>
<td>Z3263</td>
<td>1.9</td>
<td>4.8</td>
<td>4</td>
<td>Lost signal</td>
</tr>
<tr>
<td><strong>Soprano</strong></td>
<td><strong>Female</strong></td>
<td><strong>Z3278</strong></td>
<td><strong>1.4</strong></td>
<td><strong>5.2</strong></td>
<td><strong>10</strong></td>
<td><strong>Lost signal</strong></td>
</tr>
<tr>
<td>Soprano</td>
<td>Female</td>
<td>Z2939</td>
<td>2.3</td>
<td>5.1</td>
<td>6</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Male</td>
<td>Z3251</td>
<td>1.9</td>
<td>4.9</td>
<td>4</td>
<td>Lost signal</td>
</tr>
<tr>
<td>Soprano</td>
<td>Male</td>
<td>Z3281</td>
<td>2.3</td>
<td>4.8</td>
<td>6</td>
<td>Lost signal</td>
</tr>
</tbody>
</table>
# Ringed Bats released in 2007

<table>
<thead>
<tr>
<th>Ring No.</th>
<th>Species</th>
<th>Sex</th>
<th>Release weight</th>
<th>Release Date</th>
<th>Date last observed</th>
<th>No. of Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z3283</td>
<td>Common</td>
<td>Female</td>
<td>5.2</td>
<td>01/09/2007</td>
<td>24/10/2007</td>
<td>53</td>
</tr>
<tr>
<td>Z3254</td>
<td>Common</td>
<td>Male</td>
<td>4.2</td>
<td>05/09/2007</td>
<td>28/10/2007</td>
<td>53</td>
</tr>
<tr>
<td>Z2943</td>
<td>Common</td>
<td>Male</td>
<td>4.5</td>
<td>11/09/2007</td>
<td>08/10/2007</td>
<td>27</td>
</tr>
<tr>
<td>Z3279</td>
<td>Soprano</td>
<td>Female</td>
<td>4.5</td>
<td>31/08/2007</td>
<td>08/10/2007</td>
<td>38</td>
</tr>
<tr>
<td>Z3280</td>
<td>Soprano</td>
<td>Female</td>
<td>4.8</td>
<td>31/08/2007</td>
<td>4/4/2011</td>
<td>1312</td>
</tr>
<tr>
<td>Z3278</td>
<td>Soprano</td>
<td>Female</td>
<td>5.2</td>
<td>31/08/2007</td>
<td>22/04/2008</td>
<td>235</td>
</tr>
</tbody>
</table>
More questions than answers

- Foraging
- Communication
- Navigation
- Are they joining existing roosts?
- Do they find suitable winter roosting areas for hibernation?
- Do they breed and join nursery roosts?
Acknowledgments

Photography - Rob Scrivens, Kevin Eatwell MRCVS, Graham Haywood

Thanks to: Sarah Goodwin, Andrew Kelly, Andrew Smith, Jill MacKay, Chris Loughran, Maggie Brown

Staff at RSPCA Stapeley Grange for rearing, releasing and radio tracking the bats.