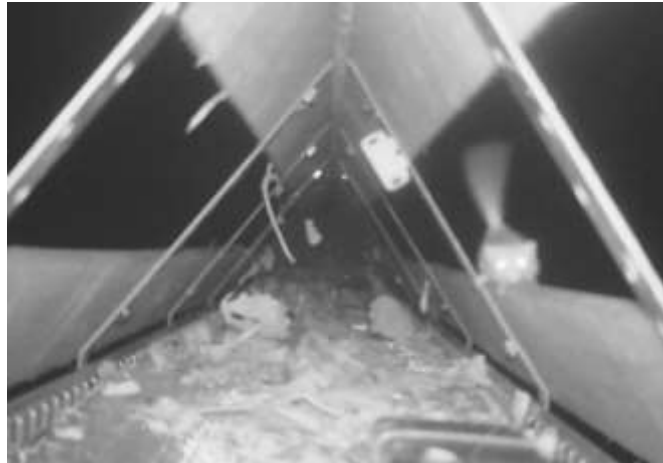


# Evidence-based Development of an Arboreal Wildlife Bridge to Prevent Habitat Fragmentation and Isolation

Sophie Hughes BSc (Hons) MSc  
Ecologist & Wildlife Bridge Advisor  
Animex Wildlife Mitigation Solutions



# Introduction

- Animex/PTES
- Review of historic wildlife bridges for arboreal habitat connectivity on highways & development projects in the UK
  - UK trial of Japanese design
    - Commercial product
      - Best practice

# Hazel Dormouse *Muscardinus avellanarius*

- Nocturnal, largely arboreal, low densities and small home ranges
- Connected woodland with dense understory
- Population decline: habitat fragmentation & isolation
- Legally protected: material consideration in planning process



# Historic Arboreal Bridges in the UK

- Lack of science-led design
  - Lack of monitoring
  - Cost
  - Longevity
  - Lack of consideration on a landscape scale
- A need for evidence-based, affordable and reliable alternative to prevent habitat fragmentation





# Japanese Arboreal Bridge Trials

- Suspended on cable, aluminum roof, mesh floor, rope runway, shelters
- Used 800 times in three months (Japanese Dormouse, Japanese Squirrel, Japanese Dwarf Flying Squirrel, Japanese Wood Mouse, Japanese Marten)
- Preference for arboreal crossing





2010/09/06

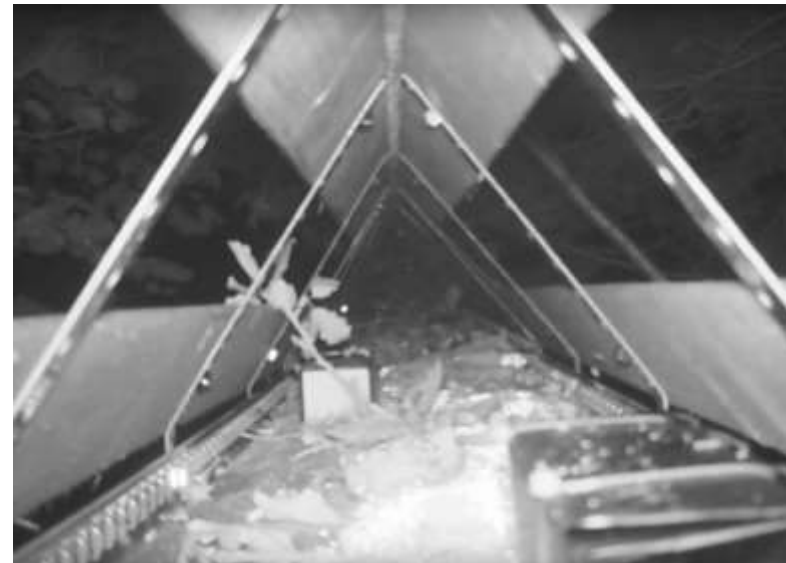
01:40:57



CH02

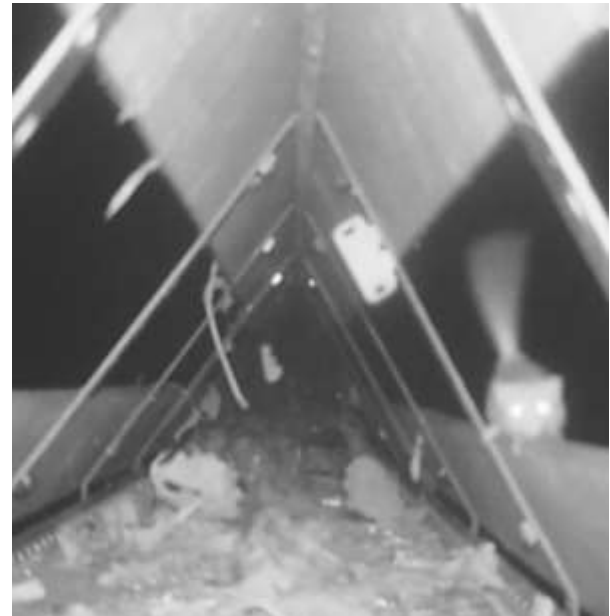
# UK Trial - Animex/PTES

- Adapted Japanese design
- Isle of Wight: known Dormouse populations
- Aims:
  - Use by Hazel Dormouse?
  - Preference for crossing habitat gap on bridge or ground?
- 30 metre habitat gap (approx. UK dual carriageway width)
- Cameras on bridge and ground
- Installed 2015, monitored active season 2016

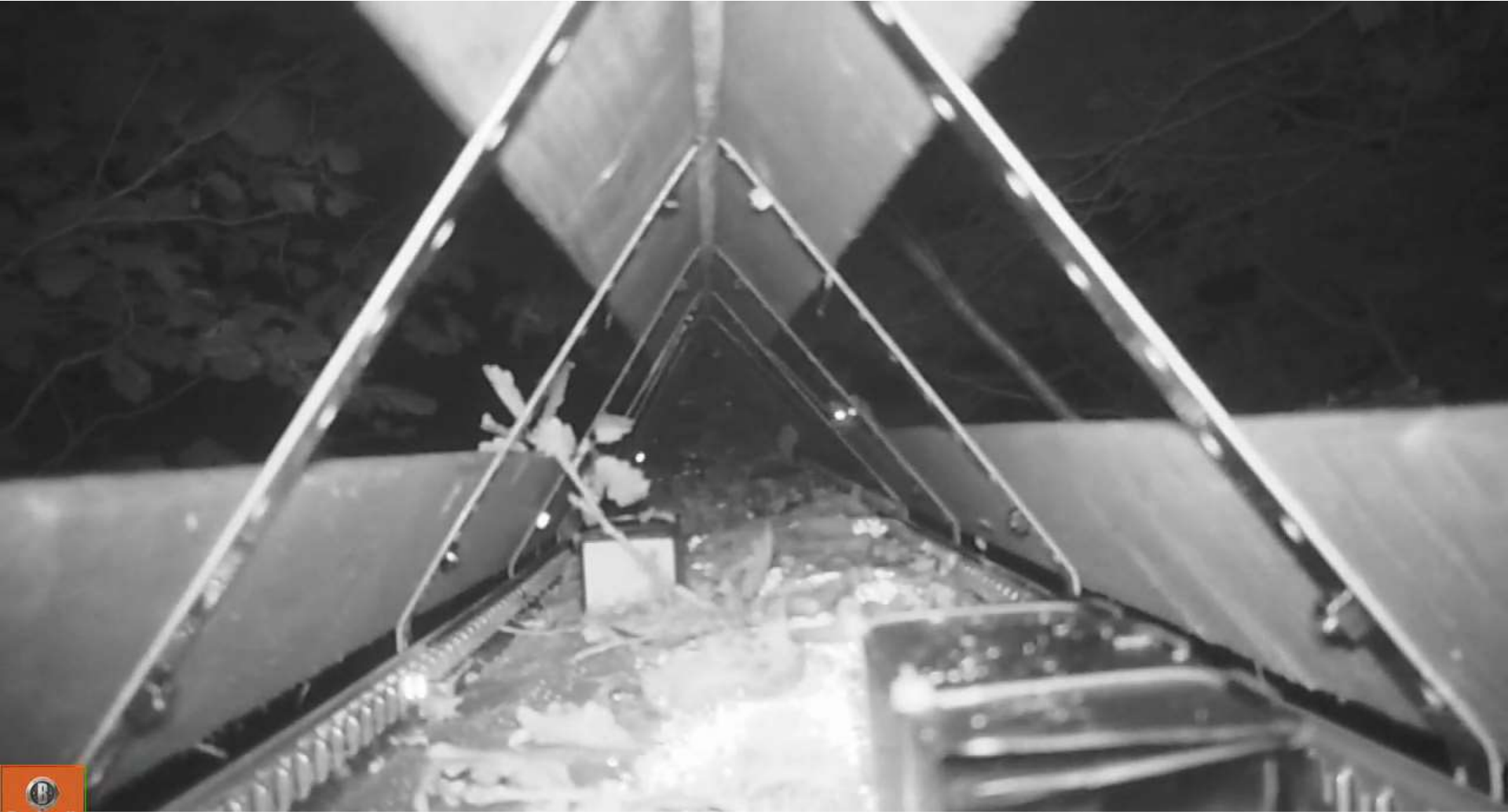


# UK Trial - Results

- Dormouse use of bridge: nine hours post-installation
- 31 individual Dormouse events on bridge vs. three on ground
- 94 individual Red Squirrel *Sciurus vulgaris* events on bridge vs. 44 on the ground (night only)
- Clear preference for use of bridge



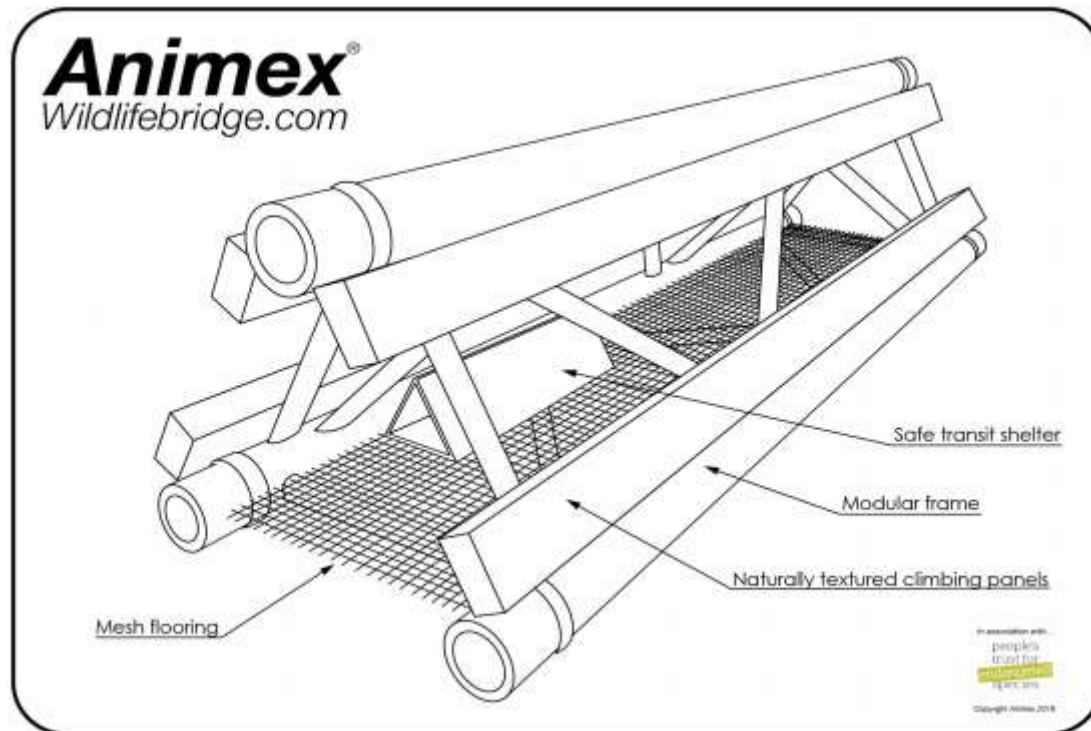




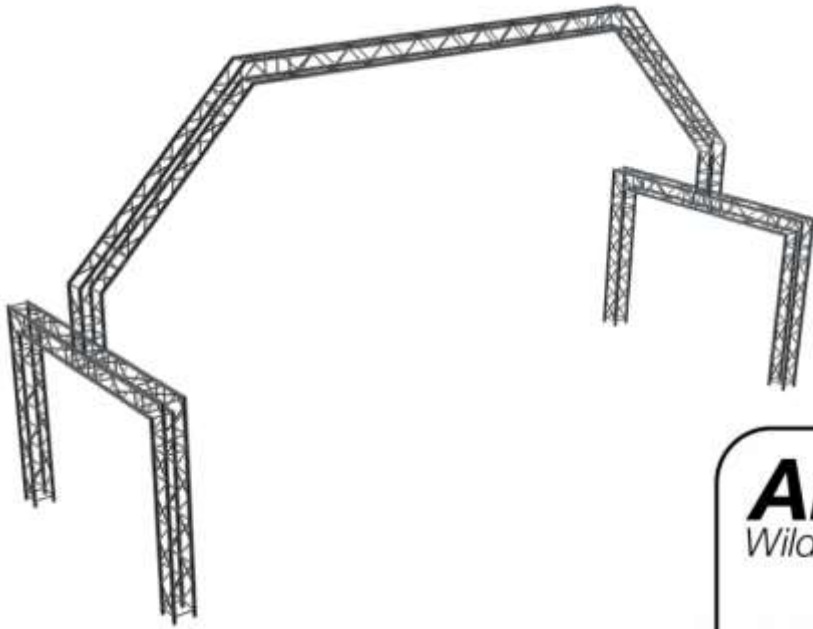
10-15-2015 04:26:39

# Progression into Usable Product

- Tried and tested design, cost effective, Highways compliant
- Multiple access points within vegetation
- Modular – adaptable, ease of shipping & installation
- Longevity: lifetime guarantee: mitigation in perpetuity
- Standalone fixed structure or retrospectively-fitted (bridges or culverts)



# Standalone Bridge



# Retro-fit Option

**Animex**<sup>®</sup>  
Wildlifebridge.com

Retrofitted to existing bridge



In association with...  
people's  
trust for  
endangered  
species

Copyright Animex 2010



# Best Practice Considerations

- Requires considered positioning on a project & landscape scale:
  - Population hotspots
  - Within a habitat network (or a newly created/enhanced network)
  - Lighting strategy
- Part of a wider landscape scheme: connectivity
- Post-completion monitoring to inform any updates to habitat management schemes
- Compliment green bridges?

# The Future of Arboreal Wildlife Bridges

- Development of a tried and tested, affordable arboreal wildlife bridge suitable for highways projects
- Provision of effective, on-going habitat connectivity in compliance with planning policy and wildlife legislation



# Thank You

[www.wildlifebridge.com](http://www.wildlifebridge.com)

[sophie@wildlifebridge.com](mailto:sophie@wildlifebridge.com)

Arkley, K., Tiktak, G. P., Breakell, V., Prescott, T. J., Grant, R. A. (2017). Whisker touch guides canopy exploration in a nocturnal, arboreal rodent, the Hazel dormouse (*Muscardinus avellanarius*). *Journal of Comparative Physiology A*, 203(2) pp. 133-142.

Bright, P. W. (1998). Behavior of specialist species in habitat corridors: arboreal dormice avoid corridor gaps. *Animal Behavior*, 56, pp. 1485-1490.

Bright, P., Morris, P and Mitchell-Jones, T. (2006). *The Dormouse Conservation Handbook*. English Nature, Peterborough.

Büchner, S. (2008). Dispersal of common dormice *Muscardinus avellanarius* in a habitat mosaic. *Acta Theriologica*, 53, pp. 259-262.

Chanin, P. and Gubert, L. (2012). Common dormouse (*Muscardinus avellanarius*) movements in a landscape fragmented by roads. *Lutra*, 55(1), pp. 3-15.

Minato, S., Iwabuchi, M., Aiba, H., Ohtake, K., Morris, P. (2012). Helping (Japanese) Dormice to cross the road. *Oryx*, 46(3), pp. 325-326.

Morris, P. and Minato, S. (2012). Wildlife Bridges for small mammals. *British Wildlife*, 28(1), pp. 153-157.

People's Trust for Endangered Species (2008). Dormouse Bridge Report Wildwood, Kent. *The Dormouse Monitor*, winter 2009, p. 8.