

BSAVA
Congress

20
17

6-9 April 2017 Birmingham, UK



Hedgehogs: pitfalls and celebrations

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Wildlife Casualties

second edition



Edited by
Elizabeth Mullineaux and Emma Keeble

Congress price £49

*Edited by Elizabeth Mullineaux and
Emma Keeble*

- Extensively revised and updated
- New topics include capture; handling and transportation; anaesthesia; care of young animals; and wildlife crime
- Species-specific chapters covering mammals, birds, amphibians and reptiles

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the BSAVA Balcony**

Conflict of Interest Disclosure

I have no relevant financial interest, arrangement or affiliation with any company or organisation

Agenda

- (Western) European hedgehog
- Clinical examination
- Husbandry
- First aid and treatment
- Specific conditions

(WESTERN) EUROPEAN HEDGEHOG

(Western) European hedgehog

- Relatively abundant
- Popular
- Easy capture
- Live in parks and gardens



- Common wildlife patients



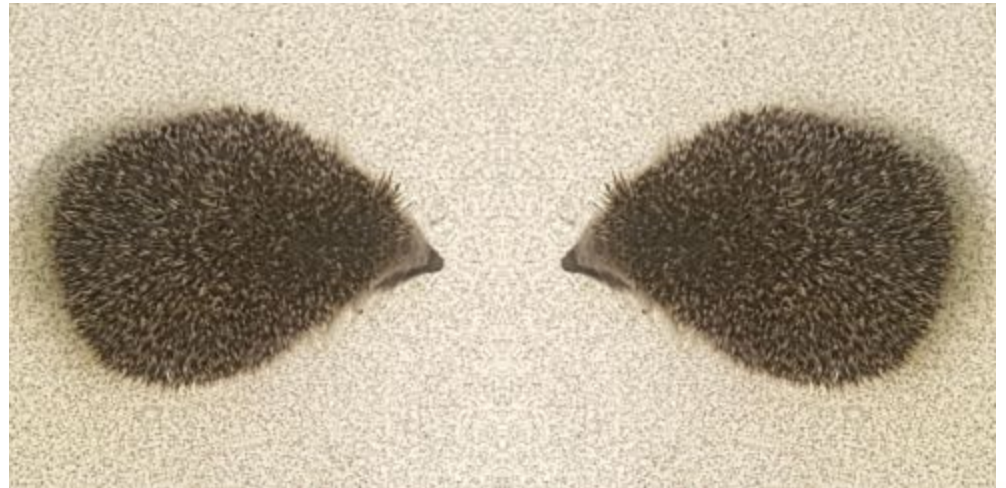
(Western) European hedgehog

- Home range
 - 10-30 hectares



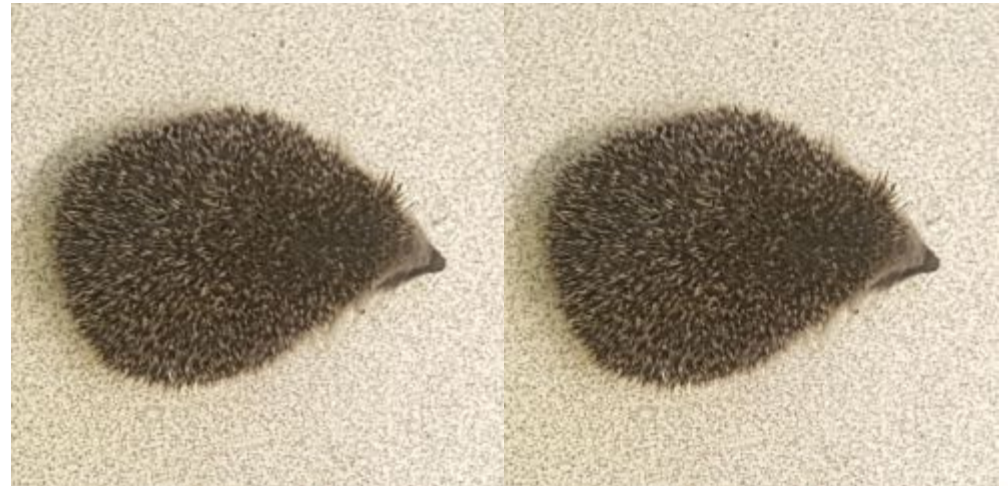
(Western) European hedgehog

- Home range
- Solitary
- 'Mutual avoidance'



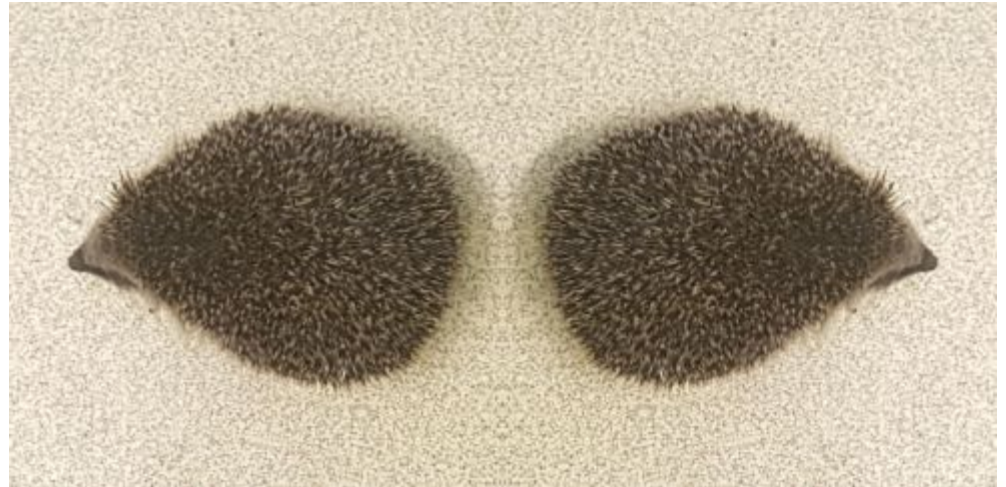
(Western) European hedgehog

- Home range
- Solitary
- 'Mutual avoidance'



(Western) European hedgehog

- Home range
- Solitary
- 'Mutual avoidance'



(Western) European hedgehog

- Nocturnal
 - Nursing mothers
- Forage
 - Keen sense of smell
 - Insectivorous
 - Opportunistic omnivores
- Nest during day



(Western) European hedgehog

- Hibernates in hibernaculum
 - Nov/Dec – March
 - Low temp (<8 C)
 - Photoperiod
 - Food availability
 - Sufficient fat reserves



Body temp < 10 C (35 C)
Heart rate 2-12 bpm (200-280)
Resp rate 13 bpm (20-25)

(Western) European hedgehog

- Breed April – October
- Gestation 5 weeks
- Litter size 3-5
- 1-2 litters/year



(Western) European hedgehog

- Human-related hazards
 - Gardening activities
 - Trapped/entangled
 - Dogs
 - Nest disturbance
 - Poisoned
 - Vehicle collisions
- Fly-strike



(Western) European hedgehog

- Hibernation
 - 70% of young hogs die in their first winter
- ‘Autumn juveniles’
 - Food scarce
 - Forced to forage during day
 - Lungworm
- Eaten by badgers

CLINICAL EXAMINATION

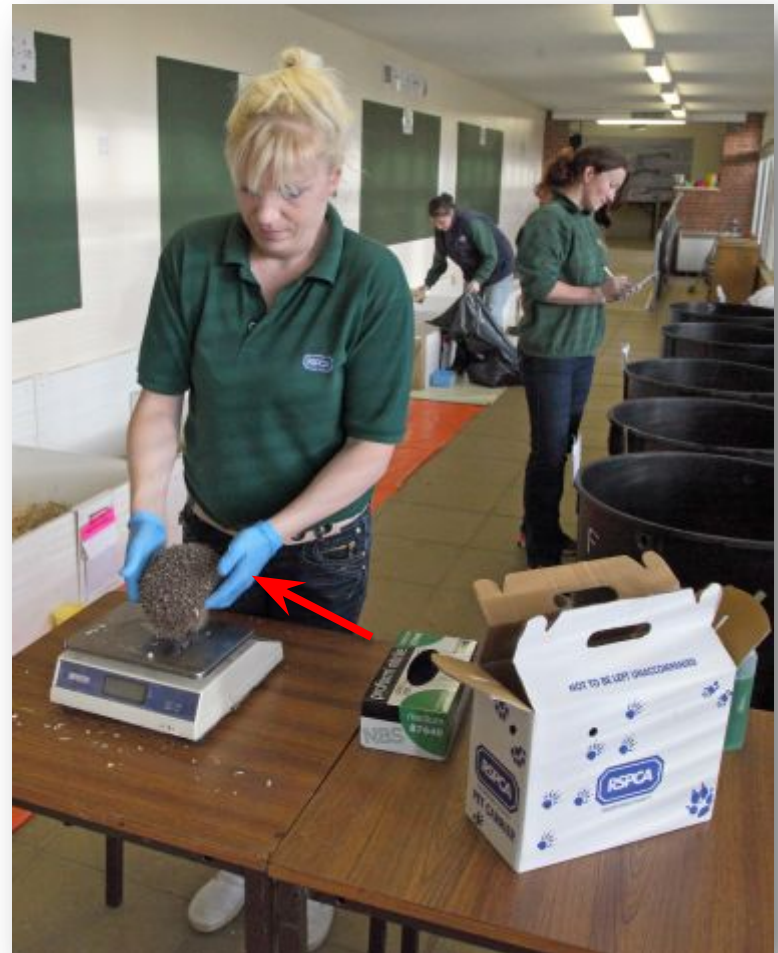
Clinical examination

- Get a good history
 - Circumstances
 - Out during daylight (ODD)
 - Food shortage
 - Disease
 - Injury
 - Location
 - Eating/drinking?
 - Hog signed over
 - Contact details!



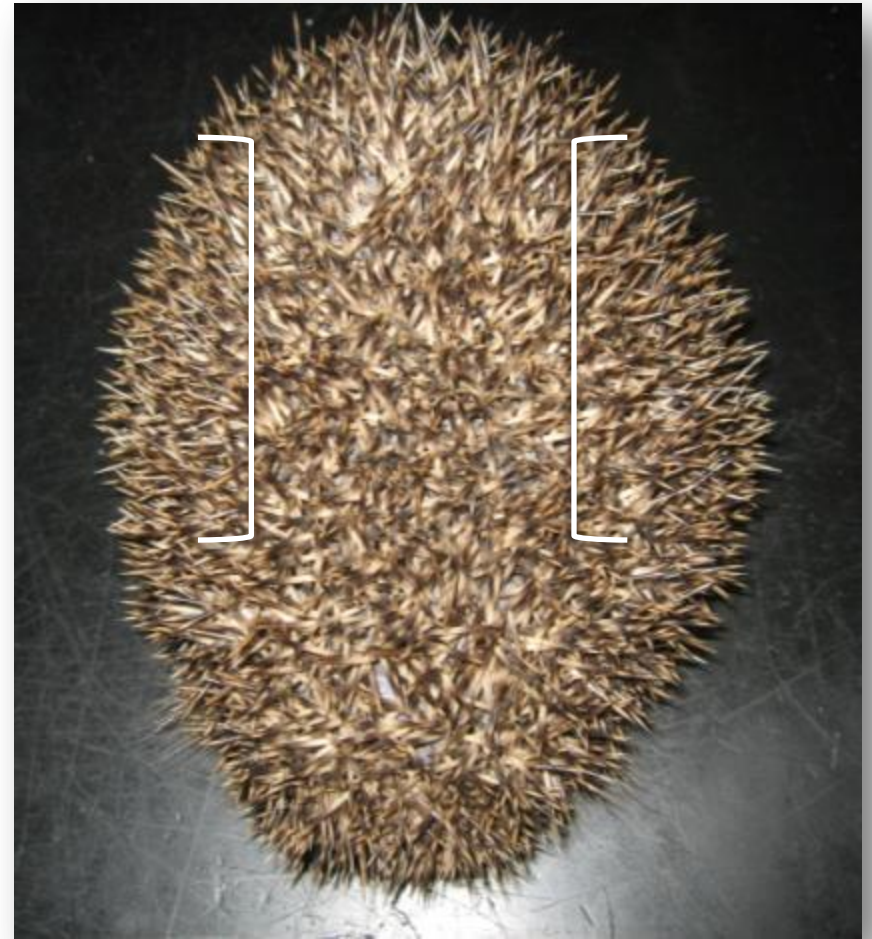
Clinical examination

- Zoonoses
 - Ringworm
 - Up to 25% of hogs
 - Most infections subclinical
 - Salmonellosis
- Rarely bite

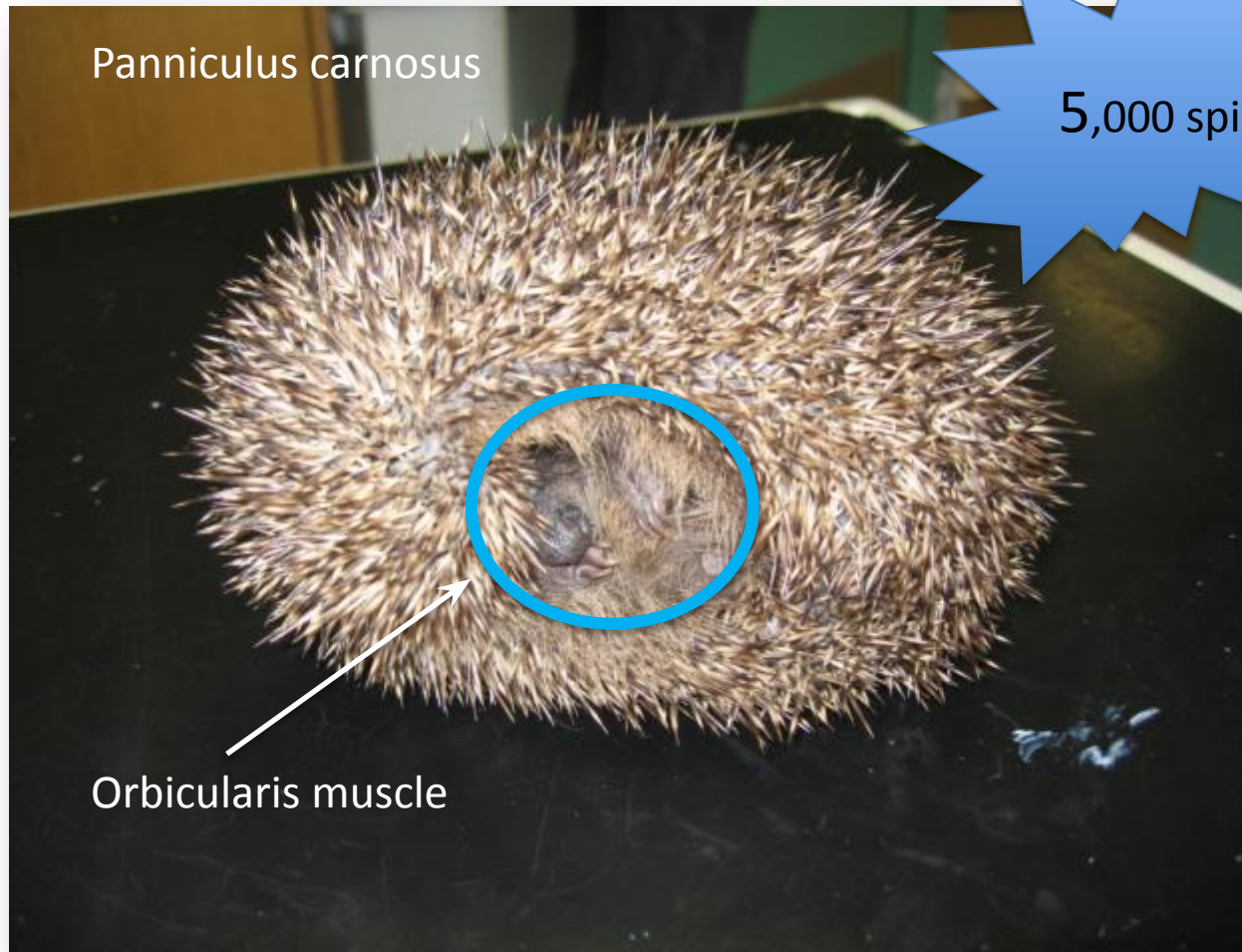


Clinical examination

- Weight
 - Adult hog: 800-1200g
- Body condition
 - Chronicity of problem?
 - ‘Autumn juveniles’
- Observe
- Examine in the hand



Clinical examination

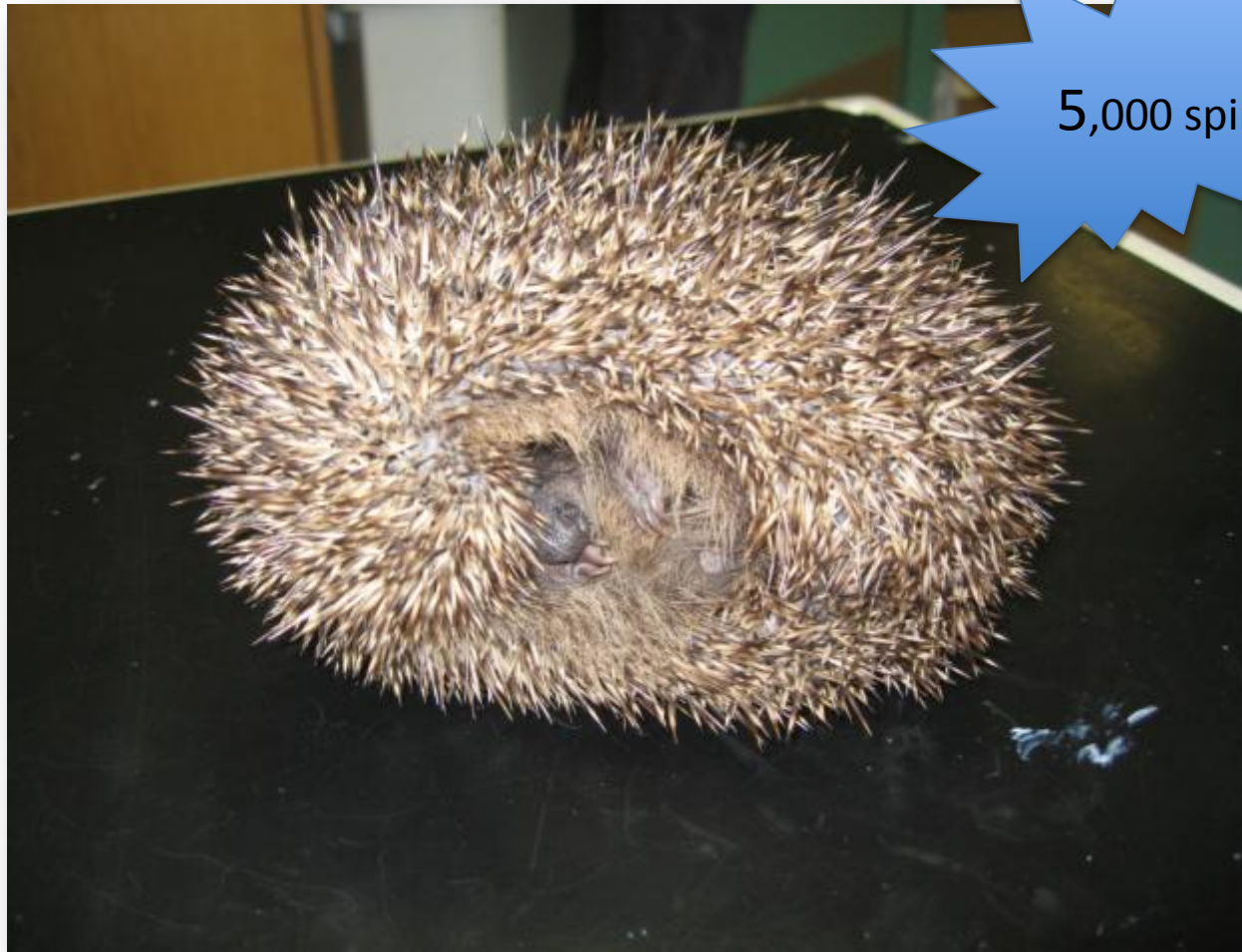


Panniculus carnosus

5,000 spines

Orbicularis muscle

Clinical examination



5,000 spines

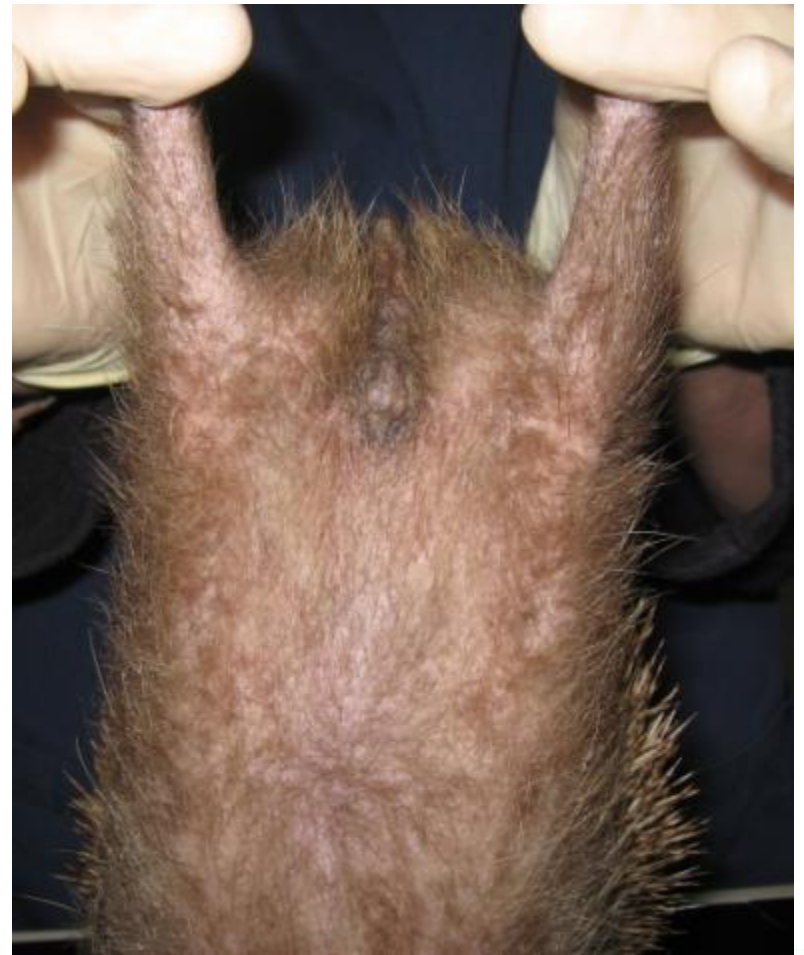
Clinical examination



Clinical examination



Male



Female

Clinical examination



Male



Female

Clinical examination



Clinical examination



Clinical examination

- Gait



Clinical examination

- Gait



Clinical examination

- Gait



Clinical examination

- Gait



Clinical examination

- Gait
 - Plantigrade stance
 - Shuffling movement
 - Weakness/debility
 - Staggering gate/tremors
 - Normal to circle initially
 - Self-anointing



Clinical examination: anaesthesia

- Stabilize first!
- Inhalational
 - Isoflurane/sevoflurane
 - Induction chamber
 - Maintenance
 - Facemask
 - ET tube
- Monitoring
 - HR/RR/Temp



The outcome of the examination?

- Immediate release
- Rehabilitation
- Euthanasia
 - Emaciated/end-stage lung damage
 - Permanent disability
 - Must be able to curl fully
 - Chronic dental disease

FIRST AID AND TREATMENT

First aid and treatment

- Hypothermia
 - Small/young/thin/bald
- Heat provided by:
 - Incubator
 - Lamp
 - Mat
 - Microwaveable heat pad
- Heat gradient



First aid and treatment

- Dehydration
 - Skin turgor
- Subcutaneous fluids
 - Dorsum or skirt
 - Large S/C space
 - Multiple sites
 - Hyaluronidase



First aid and treatment

- Other injection routes:
 - Intravenous
 - Intraosseous
 - Intraperitoneal
 - Intramuscular
 - Orbicularis
- Oral medications
 - Erratic consumption



HUSBANDRY

Husbandry

- Simple requirements
 - Away from cats and dogs
 - Plastic tub
 - Secure lid and door
 - Adequate bedding
 - Insulation
 - Somewhere to hide
 - Continue heat if necessary



Husbandry

- Diet
 - 80 g tinned cat/dog food
 - Convalescent diet
 - Dried food
 - Food for insectivorous birds
 - Proprietary hedgehog food
 - Mealworms



Husbandry

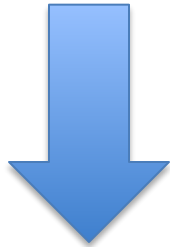
- Diet
 - Feed in evening
 - Twice daily if underweight
 - Drinking water in shallow bowl



Husbandry

- Hoglets

- Nest disturbance
- Orphaned



- Leave nest when hungry
- Whistle and peep



Husbandry

- Rearing hoglets
 - Warmth
 - 25-30 C
 - Temp gradient
 - Fluids
 - 'Toilet' first
 - Droppings naturally green
 - First feed = rehydrating solution



Husbandry

- Rearing hoglets
 - Proprietary dog/cat milk replacer
 - Milk aspiration and bloat
 - Newborn (12-20 g)
 - 1-2 ml every 2 hrs
 - 2-3 wks (80-100 g)
 - 5-10 ml every 4 hrs
 - 3-4 wks (110-170 g)
 - Start to wean



Husbandry

- Hoglets
 - Poorly developed immune systems
 - Rely on maternal antibodies
 - Present in milk for entire lactation
 - 5 weeks
 - Do not disturb!



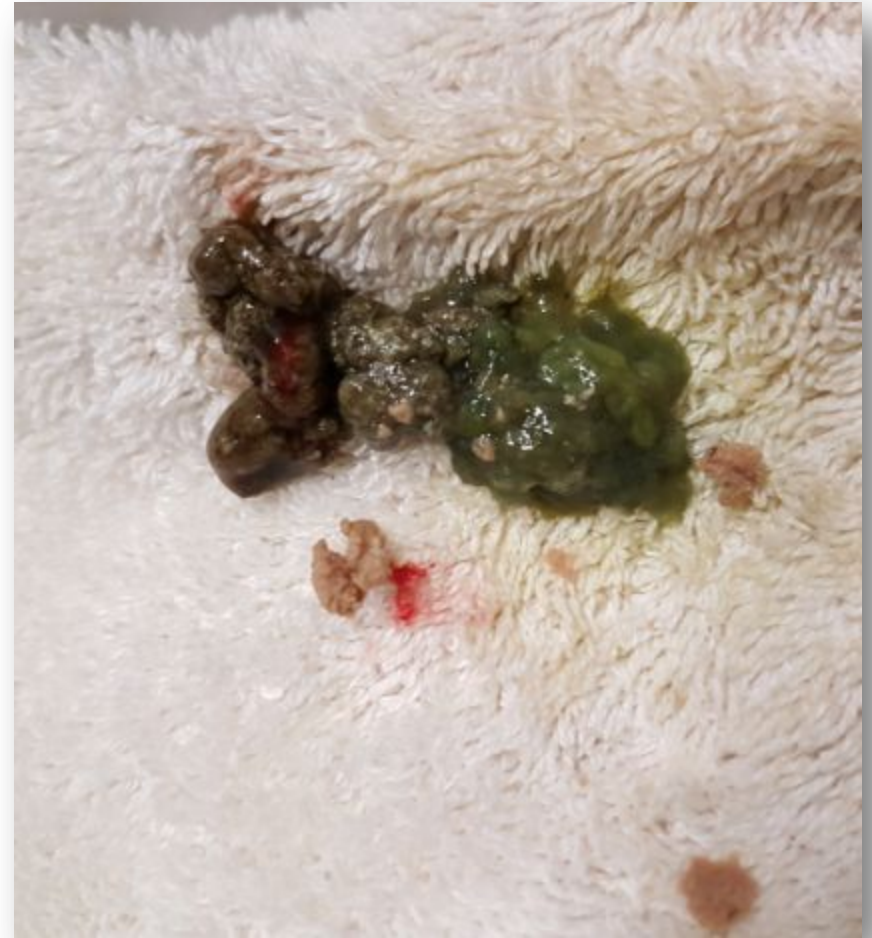
Husbandry

- Weigh daily
 - Food intake



Husbandry

- Weigh daily
- Monitor droppings



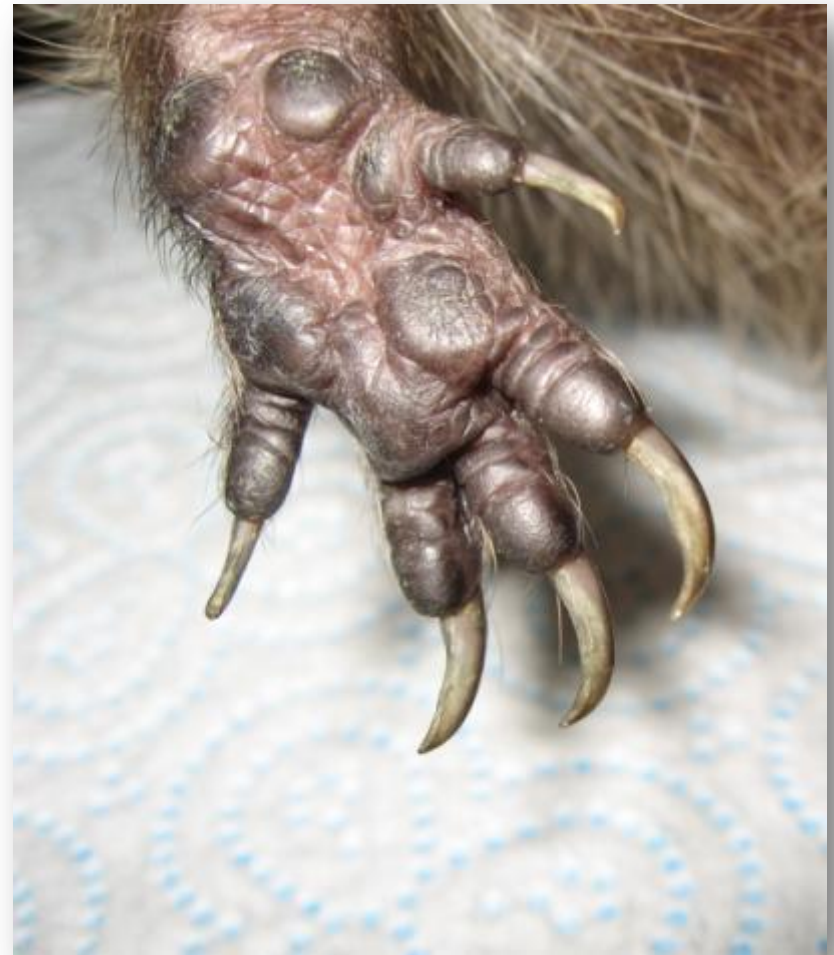
Husbandry

- Weigh daily
- Monitor droppings
- Watch for husbandry-related problems
 - Ligatures



Husbandry

- Weigh daily
- Monitor droppings
- Watch for husbandry-related problems
 - Ligatures
 - Worn feet from pacing
 - Overgrown nails



Husbandry

- Weigh daily
- Monitor droppings
- Watch for husbandry-related problems
 - Ligatures
 - Worn feet from pacing
 - Overgrown nails
 - Obesity



SPECIFIC CONDITIONS

Specific conditions: flystrike

- Warm weather
- Weak/debilitated
- Eggs laid round orifices
 - Secondary to:
 - Wounds
 - Diarrhoea
- Considerable tissue damage
- Toxins – rapidly fatal



Specific conditions: flystrike

- Treatment
 - May need euthanasia
 - Physically remove eggs
 - Brush
 - Physically remove maggots
 - Forceps
 - Squeeze from under eyelids
 - Cotton buds to clean ears



Specific conditions: flystrike

- Medical treatment
 - Cyromazine to kill eggs
 - Spot-on preps for maggots
 - Permethrin
 - Ivermectin
 - Injectable
- Supportive care:
 - Fluids/warmth
 - Systemic antibiotics
 - NSAIDs



Specific conditions: other ectoparasites

- Fleas
- Ticks
- Mites

- If present in high numbers, suggests
 - General debility



Specific conditions: other ectoparasites

- Fleas
- Ticks
- Mites

- If present in high numbers, suggests
 - General debility
 - Specific injury



Specific conditions: lungworm

- 'Autumn juveniles'
 - *Crenosoma striatum*
 - (*Capillaria aerophila*)
- Weakness/weight loss
- Moist cough
- Secondary bacterial pneumonia
 - Dyspnoea
- High mortality rate



Crenosoma striatum

Specific conditions: lungworm

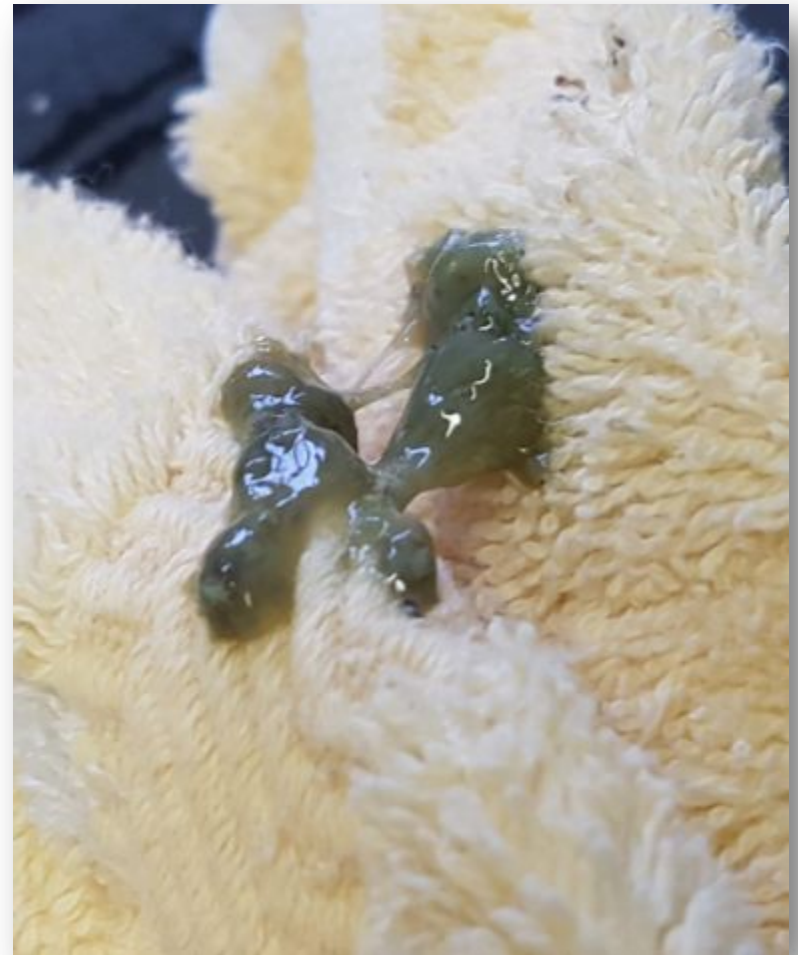
- Treatment
 - Routine treatment with levamisole (eod x3)
- Broad spectrum antibiotics
- Corticosteroids/NSAIDs
- Mucolytics/bronchodilators
- Nebulization



Crenosoma striatum

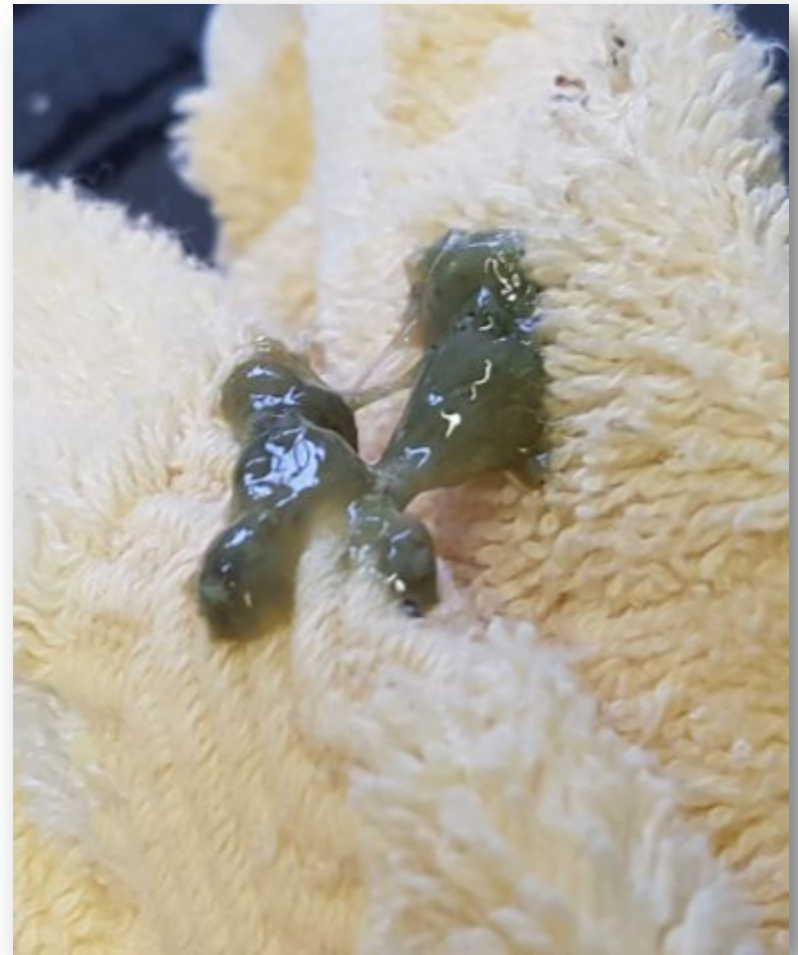
Specific conditions: other parasites

- Intestinal worms
 - Roundworms
 - *Capillaria*
 - Morbidity
 - Green mucoid diarrhoea
 - Lethargy, restlessness, weight loss
 - Ivermectin
 - Tapeworms, flukes, thorny-headed worms
 - Protozoa



Specific conditions: diarrhoea

- Digestive upset
- Salmonellosis
 - Outbreaks common
 - Juveniles
 - Anorexia and weight loss
 - Septicaemia
 - Sudden death
- Neonatal enteritis



Specific conditions: ringworm

- Diagnosis
 - Appearance
 - Generalized or localized
 - Does not fluoresce with Woods lamp
 - Fungal culture
 - Investigate concurrent mite infestation



Trichophyton mentagrophytes var. *erinacei*

Specific conditions: ringworm

- Treatment:
 - Prolonged!
 - Enilconazole baths
 - Itraconazole in food
- Good hygiene
- Treat concurrent disease



Specific conditions: trauma

- Wounds
 - Clip and flush
- Fresh
 - Cleaned and sutured
- Majority heal by secondary intention
 - Hydrogels
- Dog bite wounds penetrate deeply



Specific conditions: trauma

- Vehicle collisions
 - Fractures often compound
 - Pelvic fractures



Specific conditions: trauma

- Vehicle collisions
 - Fractures often compound
 - Pelvic fractures
 - Spinal cord injury
 - Failure to curl
 - Loss of panniculus reflex
 - Urinary incontinence
 - Rupture/herniation
 - Abdominal muscles/diaphragm



Specific conditions: trauma

- Balloon syndrome
 - SC emphysema
 - Trauma to ribcage/mediastinum
 - Deflate and medicate
 - Lung damage
- Pop-off syndrome
 - Replace under GA



Specific conditions: entrapment

- Entangled/trapped
 - Pressure necrosis
 - Monitor for a few days
 - Worn nails
 - Nail bed infection



Specific conditions: trauma

- Burns
 - Charred spines
 - Slough later
 - Smoke inhalation
 - Corneal irritation
- Supportive therapy
 - Analgesia
 - Antibiotics



Specific conditions: poisoning

- Probably underdiagnosed
 - Non-specific signs
 - Difficulty of confirmation
- Slug pellets
 - Carbamates
- Rodenticides



Thank you for listening!

