Unit 28: Undertaking Vertebrate Pest and Predator Control

Unit code: K/600/9420

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

This unit aims to introduce learners to pest and predator control skills and understanding and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

Unit introduction

Control of pests and predators is an integral part of good countryside management. The ability to eliminate and deter unwanted animals can benefit natural ecological preservation as well as the manmade environment. The ability to efficiently control pests and predators in accordance with relevant legal obligations is a sought after skill.

This unit covers the identification and ecology of the common vertebrate pests and predators likely to be encountered in the UK. These will include agricultural pests as well as those pests and predators related to game and wildlife management. The legal status of species is considered, together with the associated legislation.

The basic processes of identification using size, colour, signs and tracks are covered as well as species ecology, breeding, habitat and populations. Pest and predator populations on given sites will be determined by surveys. These fundamental elements can then be transposed across all other related species studied.

The unit looks in detail at lethal control techniques, the variety of traps and methods available, their specific uses, and related legislative obligations and codes of practice. The setting and positioning of lethal control methods is covered and learners will draw up a control plan for a pest and predator scenario. Learners will look at the use of non-lethal deterrents to prevent damage from pests and predators, and determine their effectiveness. The unit explores their use and related codes of practice and legislation. This is a vital measure when considering the number of protected species that can impact on game and wildlife populations, and the use of deterrents in situations where lethal control is difficult or unnecessary.

Learning outcomes

On completion of this unit a learner should:

1 Be able to identify the principal UK pest and predator species

2 Understand the ecology of common UK pest and predator species

3 Be able to control pests and predators using lethal methods

4 Understand pests and predators deterrent using non-lethal methods.

Unit content

1 Be able to identify the principal UK pest and predator species

Identification: survey (planning, methods, results, evaluation); pest and predator species (excluding deer) eg rodents, lagomorphs, mustelidae, foxes, corvids, which may be killed or taken by authorised persons; protected species eg raptors, badgers, otters

Presence: size; colour; sexual variations; signs and behavioural characteristics eg tracks, damage evidence, hair, faeces, smell, calls

Population: extent of damage; amount of tracks; signs; health of individuals

2 Understand the ecology of common UK pest and predator species

Ecology: terminology related to the species; physical and behavioural characteristics of species (including during the breeding season); gestation/incubation period; life expectancy; social structure; dietary preferences; preferred habitat; predator and prey relationships

Species: pests (avian eg pigeons; mammalian eg rats, rabbits, grey squirrels, mice, moles, wild boar); predators (avian eg corvids, gulls, owls, raptors; mammalian eg foxes, mustelidae, hedgehogs, feral and wild cats)

Effects: of pests (direct damage, contamination); predators (types of predation, effects of predation eg breeding success and population levels of prey species, sustainable and unsustainable levels of predation)

Evaluation of impact: reasons for controlling and/or deterring eg prevention of habitat or crop damage, economic losses involved; effects of over-population of pests and predators in the local area

3 Be able to control pests and predators using lethal methods

Types of traps and other techniques: traps eg approved spring, cage, box traps, 'live' and 'dead' trapping; other techniques eg snaring, poisoning, gassing, shooting, use of animals (dogs, ferrets, birds of prey)

Operation: health and safety; zoonoses; personal protective equipment (PPE); security; restrictions on control method used; conformation to relevant legislation and current codes of practice; stated target species and site characteristics; trap/technique selection (checking and re-setting)

Legislation: current relevant legislation eg Wild Mammals (Protection) Act 1995, Wildlife and Countryside Act 1981, Firearms Act 1968, Animal Welfare Act 2006, Waste Disposal legislation and open general licences

Codes of practice: current relevant codes of practice; relevant code setting bodieseg Department for the Environment, Farming and Rural Affairs, British Association for Shooting and Conservation, The Game Conservancy Trust, Countryside Alliance, Health and Safety Executive

Planning and monitoring of control: control programmes; species specification; proactive and reactive action; identification of significant periods; weekly/monthly plans; record keeping; disposal of waste

4 Understand pests and predators deterrent using non-lethal methods

Techniques: physical eg fencing, protective guards, electric fences; audible, eg whistling thread, gas gun, bangers; visual eg reflective deterrents, inflatable deterrents, predator imitations, scarecrows; chemical deterrents; habitat management; relative effectiveness

Operation: health and safety, PPE; security; relevant legislation and codes of practice; suitability eg species targeted, site characteristics, method selection, checking, location, maintenance

Legislation: current relevant legislation eg Environmental Protection Act 1990, Wild Mammals (Protection) Act 1995, Wildlife and Countryside Act 1981, Animal Welfare Act 2006

Codes of practice: use of codes of practice; codes of practice setting bodies eg British Association for Shooting and Conservation, The Game Conservancy Trust, Countryside Alliance, Health and Safety Executive; National Farmers Union; local authorities

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**	**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**
P1 identify principal UK pest and predator species	**M1** assess the relative population size of pest and predator species in a given area	**D1** evaluate the impact of pests and predators in a given area
P2 describe the tracks and signs of locally occurring pests and predators		
P3 survey a given area to identify locally occurring pests and predators		
P4 explain the ecology of a selected avian pest or predator species [IE]	**M2** relate the ecology of selected avian and mammalian pest or predator species to its effective control	
P5 explain the ecology of a selected mammalian pest or predator species [IE]		

Assessment and grading criteria					
To achieve a pass grade the evidence must show that the learner is able to:		**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**		**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**	
P6	demonstrate the correct methods of controlling pests and predators using spring traps [EP]	**M3**	discuss the use of spring traps, snares and live catch traps for selected pest and predators	**D2**	recommend and justify an integrated control programme designed for a range of pest/predators in a given area, using both lethal and non-lethal techniques as appropriate.
P7	demonstrate the correct methods of controlling pests and predators using snares [EP]				
P8	demonstrate the correct methods of controlling pests and predators using live catch traps [EP]				
P9	discuss the effectiveness of selected non-lethal deterrents on pests and predators	**M4**	discuss the advantages and disadvantages of non-lethal methods of pest and predator control.		
P10	recommend appropriate non-lethal methods for a given pest situation				
P11	recommend appropriate non-lethal methods for a given predator situation.				

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and may link to work experience placements.

Where used to support delivery, work placements should be monitored regularly in order to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit prior to any work-related activities so that naturally occurring evidence can be collected at the time. For example, learners may have the opportunity to use pest and predator control methods and/or deterrents, and they should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Visiting expert speakers could add to the relevance of the subject. For example, a professional pest controller, a local authority Environmental Health Officer, a gamekeeper or a wildlife manager could talk about their work, the situations they face, and the methods they use.

Whichever delivery methods are used, it is essential that tutors stress the importance of animal welfare, sound environment management and the need to comply with current legislation and codes of practice.

Health and safety issues relating to pest and predator control must be stressed and regularly reinforced, and risk assessments must be undertaken prior to any practical activities and site visits. Adequate PPE must be provided and used following the production of suitable risk assessments. Learners must be made aware of the dangers and symptoms of enzootic diseases that can be contracted from pests and predators.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units and assessment instruments learners are taking as part of their programme of study.

Learning outcomes 1 and 2 are directly linked. These learning outcomes are likely to be delivered by classroom-based activity, discussion, site visits, practicals and independent learner research. Learners will be able to identify and understand the ecology of the principal UK pest and predator species, and the predator/prey relationships. Learners will also need to be able to carry out a survey of a given area to assess the pests and predators present.

Learning outcome 3 covers the use of lethal methods of pest and predator control. Delivery techniques should be varied and can be linked to the delivery of learning outcomes 1 and 2. Supervised pest and predator practicals and site visits are likely to form the majority of the delivery of this outcome, supplemented by classroom-based activities and learner research.

Learning outcome 4 covers the use of non-lethal methods and techniques to deter pests and predators. Delivery techniques should be varied and can be linked to the delivery of learning outcomes 1, 2 and 3. Classroom-based activities including case studies, discussions, supervised pest and predator practicals and site visits should form part of the delivery of this learning outcome.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Theory session: definitions of pest/predators; legal status of pest/predator species predator prey interactions and population dynamics.
Assignment 1: Pest/Predator Species Ecology (P4, P5, M2) Tutor introduces the assignment brief.
Classroom session: key aspects of ecology required for efficient control; sources of information.
Species ecology presentations and discussions. Ecology and identification of major vertebrate pest/predator species.
Class discussion on legal control techniques.
Learner research and assessment completion.
Assignment 2: Pest/Predator Survey (P1, P2, P3, M1, D1) Tutor introduces the assignment brief.
Classroom-based activity: tracks and signs, planning surveys.
Practical activities: Identify survey area. Review typical tracks/signs expected. Learners carry out survey and report back findings.
Learner research and assessment completion.
Assignment 3: Practical Control Techniques (P6, P7, P8, M3) Tutor introduces the assignment brief.
Theory session: legislation and codes of practice.
Demonstration and learner practice: setting traps, snares and live catch traps.
Classroom review and evaluation of methods used.
Practical assessment: setting traps, snares and live catch traps.
Assignment 4: Integrated Pest/Predator Control Programme (P9, P10, P11, M4, D2) Tutor introduces the assignment brief.
Non-lethal techniques – theory and practical sessions covering the principles and practice of all common deterrents with discussion of the advantages and disadvantages of each.
Learner research and discussion: novel techniques – exploration of newer techniques that have potential in UK pest and predator control.
Theory session: reasons for using integrated techniques, consideration of efficiency and effectiveness.
Work-based reinforcement and practice.
Learner research and assessment completion.
Unit review.

Assessment

Assessment of P1, P2 and P3 may be linked. For P1, learners are required to identify principal UK pest and predator species. As a minimum, learners should provide evidence covering three pests and two predators. Evidence may be through tutor observation of practical identification through survey work or through an identification test.

For P2, learners should describe the tracks and signs of locally occurring pests and predators. Evidence may be through an illustrated report, leaflet or poster.

For P3, learners must survey a given area to identify locally occurring pests and predators. Evidence could take the form of tutor observations, a practical logbook or a report of the survey findings.

P4 and P5 require learners to explain the ecology of a selected avian (P4) and a selected mammalian (P5) pest or predator species. Tutors should identify the species or agree them through discussion with learners. Evidence should cover the major aspects of ecology in the unit content and could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector), an annotated poster or a project.

For P6, P7 and P8, learners are required to demonstrate the correct methods of controlling pests and predators using selected lethal methods: spring traps (P6), snares (P7) and live catch traps (P8). This could be assessed directly by the tutor during practical activities. Suitable evidence would include observation records completed by learners and the tutor. If learners are assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor. All tasks should be completed taking into account appropriate health and safety risk assessments and practices, and should comply with relevant legislation and codes of practice.

For P9, learners must discuss the effectiveness of a range of non-lethal deterrents in common usage. Evidence should include at least three deterrents and may be a written or verbal report, article, poster or leaflet.

For P10 and P11, learners are required to recommend a specific deterrent for a given pest (P10) and predator (P11) situation. Assessment may be based around a case study or naturally occurring local situation. Evidence may be in the same format as for P9.

For M1, learners should give an indication of the relative size of pest/predator populations present in a given area. This could be based on direct counts of individuals but is more likely to be based on observation of tracks/signs as an indirect estimate of population size. Evidence may be linked to P1, P2 and P3 and presented in the same format.

For M2, learners must relate the ecological facts about selected pest or predator species to how control methods can be deployed most effectively against them. This should include one avian and one mammalian pest or predator species. This is likely to be an extension of work completed for P4 and P5 and may be in the same format.

For M3, learners must discuss the use of lethal methods of control for a minimum of three selected pests or predators. This discussion should include the advantages and disadvantages of each method and which would be most suitable for which pest or predator species. This discussion should also encompass relevant legislation and codes of practice. Evidence may be a written or verbal report, article, presentation or project.

M4 requires learners to discuss the advantages and disadvantages of non-lethal methods of pest and predator control. Evidence may take the same form as for M3.

For D1, learners should evaluate the impact of pests and predators in a given area, and assess whether it is likely to cause a significant impact which would warrant their control. Evidence may be linked to M1 and M2 and presented in the same format.

D2 requires learners to assimilate all their knowledge of pest/predator control to recommend and justify an integrated control programme that deals with a range of species in a given area using both lethal and non-lethal techniques. Evidence may be a written report, verbal presentation or project.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, M1, D1	Pest/Predator Survey	You have been asked to assess an area to determine whether pest/predator control is required. Undertake a survey of a local estate for pests/predators. Identify the presence of predators from direct observation or tracks/signs. Report back on what species were present, the relative size of the population and the likely impact they would have.	Practical observation and assessment. Written/verbal report.
P4, P5, M2	Pest/Predator Species Ecology	You have been asked to write an article for a countryside publication on Pest and Predator Species Ecology. Include details of the ecology of one mammal and one bird pest/predator species and discuss how this information can be used to control each species more effectively.	Written/verbal report.
P6, P7, P8, M3	Practical Control Techniques	You are training a group of volunteers in the use of lethal methods of pest and predator control. Demonstrate the use of a spring trap, fox snare and Larsen trap correctly according to current legislation and codes of practice. Discuss the use of the different methods, including legislation and codes of practice governing their use.	Practical observation and assessment. Verbal discussion.
P9, P10, P11, M4, D2	Integrated Pest/ Predator Control Programme	You have been employed by an estate owner who needs an integrated pest control programme, but is also particularly interested in the use of non-lethal methods. Write a report discussing the effectiveness of a range of non-lethal techniques, their advantages and disadvantages, and recommend non-lethal methods to control one of the pests and one predator present on the estate. Produce an integrated control programme for a range of species that utilises both lethal and non-lethal techniques.	Written report.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
Introduction to Game Management	Element CU46.1 Monitor vertebrate pest and predator populations Element CU46.2 Trap vertebrate pests and predators Element CU80.1 Monitor and plan the control of pests, diseases and disorders Element CU80.2 Manage the control of pests, diseases and disorders
	Understanding Fishery Management
	Use of Firearms in the Environmental and Land-based Sector
	Understand Working Dogs
	Undertake Gamebird Production
	Understanding Principles of Game Management
	Understanding Ecology of Game Species
	Undertaking Shoot Management
	Understanding Ecology of Game Species

Essential resources

Learners will need access to an area of land large enough to support populations of at least five different pest/predator species. Ideally, this would be a sporting estate managed for driven game shooting.

Employer engagement and vocational contexts

This unit focuses on practical aspects of pest and predator control and will give learners the necessary background ecological knowledge. Centres are encouraged to create and develop links with local sporting estates. This could be via guest lectures, practical workshops or visits to see gamekeepers actively involved in pest/predator control.

Indicative reading for learners

Textbooks

Agricultural Development and Advisory Service – *The ADAS Pest Manual: A Reference Manual for the Management of Pests* (ADAS, 1999) ISBN 1899263030

Bang P and Dahlstrom P – *Animal Tracks and Signs* (Oxford University Press, 2006) ISBN 0199299978

Bateman J – *Animal Traps and Trapping* (Stackpole Books, 2003) ISBN 0954211774

Bucknell R – *Foxing with Lamp and Rifle* (Foxearth Publishing, 2001) ISBN 095402060X

Caple S – *Trapping Techniques: Part 1 – Moles, Squirrels, Rabbits and Mink* (Countryman Pest Control, 2002)

Forestry Commission and Pepper H W – *Grey squirrel control with warfarin: Forestry Commission research information notes 180* (Forestry Commission, 1990)

Frain S – *Fox Control* (Quiller Publishing Ltd, 2006) ISBN 1904057810

Frain S – *Rabbiting with ferret, dog, hawk and gun* (The Crowood Press, 2005) ISBN 1861268025

Game Conservancy – *Hints for using Larsen Traps* (Game Conservancy Trust, 2002)

Game Conservancy – *Predator Control Second Edition* (Game Conservancy Trust, 2005) ISBN 0950013064

Hogg G – *Practical Pest Control in the Countryside* (Coch-y-Bonddu, 1998) ISBN 0952851083

Parkes C and Thornley J – *Fair Game: The Law of Country Sports and the Protection of Wildlife, New Revised Edition* (Pelham Books, 1997) ISBN 0720720656

Roberts M – *Modern Vermin Control, Third Edition* (Gold Cockerel Series, 2001) ISBN 0947870105

Stuttard R M – *Predatory Mammals in Britain: A Code of Practice for their Management, 4th Edition* (British Field Sports Society, 1986)

Websites

www.basc.org.uk	British Association for Shooting and Conservation
www.cla.org.uk	Country Land and Business Association
www.defra.gov.uk	Department for Environment, Food and Rural Affairs
www.forestry.gov.uk	Forestry Commission
www.gct.org.uk	Game and Wildlife Conservation Trust
www.ngo.org.uk	National Gamekeepers Organisation

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	researching the ecology of selected species
Effective participators	undertaking practical control techniques.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Creative thinkers	considering how novel techniques of pest/predator control can be deployed
Reflective learners	applying the knowledge of species ecology to their effective control.

Functional Skills – Level 2

Skill	When learners are ...
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	carrying out research using the internet on information and images relevant to the ecology of selected species carrying out research using the internet on appropriate codes of practice
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	producing written assessments using ICT programmes
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	producing a leaflet/presentation on the ecology of a selected species
Evaluate the selection and use of ICT tools and facilities used to present information	
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	discussing appropriate control techniques
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing an integrated control programme for a range of species using both lethal and non-lethal techniques.