		tactics, indivudals changed their use of each, such that the group converged on the predicted stable equilibrium frequency of the scrounger tactic after 5-8 days.
	Mating tactics	Strategy: a genetically-based decision rule Tactic: behaviour pattern played out as part of a strategy Competition for mates can give rise to different mating strategies, including 'satellite' males that sneak in to mate with females, different morphologies and polymorphism based on genetic differences. 'Mimic female' morphs are allowed into territories; small morphs are able to sneak into territories; these two have equal reproductive success to the dominant male! Time spent by dung beetles at a dropping is influenced by sexual selection i.e. the searching phase, how much time he spends searching at dung for a female.
	Territoriality	When animals compete in relation to a specific spatial area, resource holders exhibit territoriality. A territory is defined as a *fixed area* defeneded with *behavioural acts* that results in *exclusive use of the area.* A defended territory provides owners with access to foraging locations, potential mates and/or shelter from predators, but also carries a cost. Costs include time spent on excluding rivals and/or the risk of injury or exhaustion. Territory defence is expected to arise when the benefits exceed the costs. **Case study: Lizards** • Lizards' territorial signals vary from conspicuous colouration and movements, to chemical cues and even acoustic signals. In some lizard species, thermal conditions and refuge from predators provide the key resources those animals seek to defend – particularly in burrow-dwelling speices, whereby the burrow entrance is the centre of their territory and vigorously defended from potential usurpers • One such species is the Qinghai toad-headed agama lizard (*Phrynocephalus vlangalii*), which is a high-elevation viviparous lizard found on the Tibetan Plateau in northwest China. They live in high densities and occupy small overlapping home ranges centred on a burrow. Burrows are a vital resource, providing a refuge from predators during spring and summer, and a shelter from harsh winter conditions when the ground is covered in thick snow. Males aggressively defend their burrows. • Territorial behaviour need not always involve physical contact that carries the risk of injury or even death. Indeed, many species produce signals to resolve conflict, and the structure of these signals is predicted to contain sufficient information from which receivers can decide whether escalating the contest is worthwhile. Visual displays between residents and intruders are a conspicuous feature of male *P. vlangalii* behaviour at their burrows. • The strong selective pressure on males of shelter-based species to defend their key resource must also be true for females. Indeed, female resource defence behaviour is reported in a variety of taxonomic groups in which the ownership, control and defense of a key resource have clear functional benefits for females. Examples of territorial females include the funnel web building spider *Agelenopsis aperta* in defense of her web, the fiddler crab *Uca vocans* who vigorously defends her burrow and surrounding area, and the lizard *Iguana iguana* who fights off other females from her chosen nesting site. The behaviour of these species suggests a valued resource.
Predator-prey interactions	Co-evolution of predator and prey	Predator-prey interactions are considered to be something of an arms race. Predators evolve to deal with cryptic species through formation of search images, while prey evolve to counter searching abilities through strategies like polymorphism.
	Crypsis	Crypsis is a defence strategy that has specifically evolved to reduce the probability of detection. Edge detection is a very important part of visual processing: most effective crypsis has disruptive edge markings. In *Catocala* moths, cryptic forewings cover brightly-coloured hindwings, which are revealed after a predator has initiated its attack as a **startle mechanism**.

	Startle mechanisms	Startle mechanisms (also called deimatic or dymantic displays) involve sudden, conspicuous changes in the appearance or behaviour of prey which serve to confuse or alarm certain predators. Other examples include cephalopods ejecting a dark ink when disturbed; hissing sounds produced by tortoises; rabbits bolting in an explosive, unpredictable manner. **Eyespots** have been found to reduce predation by intimidating predators before an attack or by startling them once an attack has been initiated, and have been proposed to work because predators falsely classify the markings as the eyes of the predators' own enemies (**mimicry**). However, data suggests (1) that eyespots are effective primarily because they are highly conspicuous, (2) that circles are more effective than less eye-like shapes because such patterns will also be highly conspicuous to animals with circular receptive fields in their retinae, and (3) that eyespots can be effective predator detterents without mimicking eyes.
	Search images and polymorphism	Predators might develop a strategy that enables them to identify prey rapidly: search image formation. Polymorphism prevents the development of a search image as predators do not only see one particular morph. Polymorphic cryptic colouration occurs in many prey species – particularly common in moth species that rest all day on tree trunks. Polymorphism maintained if predators focus on common prey types – rarer individuals more often overlooked (apostatic selection). Apostatic selection, in which predators overlook rare prey types while consuming an excess of abundant ones, contributes to the maintenance of prey polymorphisms. This effect requires predators to respond to changes in the relative abundance of prey, switching to alternatives when a focal prey type becomes less common. Apostatic selection has often been investigated using fixed relative proportions of prey, but its effects on predator-prey dynamics have been difficult to demonstrate. An experiment on blue jays hunting for cryptic moths found that jays showed clear searching-image effects where the ability to detect cryptic prey varies with the encounter frequency. Thus by tending to search for the morph that is currently most abundant, predators improve their ability to detect that morph, maximising the short-term foraging success. However, the long-term consequence is to generate a distribution of prey abundances that yields a significantly reduced rate of return, as the most abundant morph would be driven to a lower abundance, and the predator would then have to adjust its search image to that of the new abundant morph.
	Masquerade	Masquerade refers to camouflage without crypsis, by looking like something else (**mimicry**). Masquerading organisms appear to closely resemble inedible and generally inanimate objects such as twigs, leaves, stones and bird droppings. Individuals are assumed to avoid predation or gain access to prey by being misidentified as either inedible objects by their predatos or as innocuous objects bytheir prey. Examples: weedy sea dragons/stick insects – plain view, just disguised as non-prey and non-predator It is difficult to determine whether a predator has detected and misidentified an individual (masquerade) or whether it has simply failed to detect the prey item (crypsis). A study of masqueradeing twig-resembling caterpillars as prey of domestic chickens tested the time it took for juvenile chicks to attack the prey. Chicks who had prior experience of twigs took longer to attack twig-resembling caterpillars, and handled them more cautiously, compared to chicks who had either no experience of twigs or experience only of twigs whose visual appearance had been manipulated by binding them in coloured thread. Thus masquerade increased anti-predatory protection in the natural environment: increased latency to attack and more cautious handling.
	Aposematism	Aposematism refers to **warning colouration:** indicate toxicity Hypothesis is that bright colours are best as warning signals Poison frogs, desert locusts Solitary-phase desert locusts avoid predator detection through crypsis and would not benefit from consuming toxic plants; gregarious-phase locusts acquire toxicity through the consumption of toxic plants, associated with aposematic antipredator strategies with differences in colouration to that of solitary locusts.