
Firelizard Biology & Behaviour

By Amanda Kear with bits pillaged from Smitty's original "Fauna of Pern" article, and with help from Smitty and Holly Hutchison

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Firelizards are one of the best known of Pernese species. Attaching themselves to human companions and providing the genetic material from which the dragons and watchwhers were developed, firelizards are smooth skinned carnivorous creatures that inhabit coastal regions with tropical climates. They have six limbs – forelegs, hind legs and a pair of membranous wings. They also have a semi-prehensile tail, capable of twining round a branch – or an owner's neck.

Firelizards have a social structure based around different 'castes' defined by genetically determined colours. Each group, or fair, of 'lizards is led by a golden-yellow queen. Of the other colours, the small and numerous greens are female, while the blues, browns and bronzes are male. Unlike dragons, both golds and greens are fertile and can produce eggs.

One of the most notable thing about firelizards – and the thing that made them suitable for creating the dragons from – is their mental abilities. A fair is held together by empathic and telepathic ties that are established at birth, and so hatchling 'lizards can bond to humans as readily as to others of their own species. Unlike Impression of a dragon, *anyone*, of any age or gender, has the ability to Impress a firelizard of any colour, providing they have enough food on hand and aren't being aggressive or afraid of the hatchling.

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Because there is contradictory information on firelizard behaviour in various Pern books, Kadanzer Weyr has decided to take what is written in the earlier books (e.g. *DragonSong*, *The White Dragon*) as canon, and thus taking precedence over novels written later (e.g. *DragonsDawn*). As most of the behaviour described in *DragonsDawn* is actually of the unenhanced dragonets, not the metasynth-enhanced firelizards, the technical minded amongst you can put the contradictions down to the effects of genetic tinkering by Bay Harkenon and Pol Nietro... followed by several thousand years of natural selection!



When Is a Territory Not a Territory?

Zair had given him the most confused images, which had excited Berd, Grall and every firelizard in Benden Weyr to the point where Lessa told Ramoth to banish the whole lot. In proof of which, the air above the Cove was filled with fair upon fair of firelizards, making a tremendous clamour. The White Dragon.

Firelizards are not territorial in the true biological definition of the word – that is, they do not defend a patch of land with well-defined borders from any and all members of their own species. In fact, it is their very lack of territoriality that has made them so adaptable as human companions. Truly territorial animals do not leave their hard-won territories - because someone else might steal it when you are away! Firelizards, however, are quite happy to travel to new locations with or without their human companions, and don't threaten or attack unfamiliar firelizards on sight, either at home or elsewhere.

What firelizard fairs have instead of territory, is a home range – an area that they live in, but which is not necessarily exclusive to that one fair. Thus several fairs will have overlapping ranges, much the same way that wild horse herds do. Certain resources, like a shellfish bed exposed at low tide, may be utilised by more than one fair. Of course, if two fairs turn up at the morning tide, squabbles may break out over *which* fair gets first access to the food!

Within each home range, there will be a core area where the fair – and particularly the gold that heads it – spends most of their time. This will be where the gold's clutch sites are located. The fair *will* try to be more diligent about excluding other fairs from this breeding area, particularly when there is a clutch to guard, as gold firelizards are not above eating another firelizard's eggs (see *Clutch Sites* and *Are Greens Bad Mothers?* below).

For further information on home ranges, see *Golds* and *Clutch Sites*.



Golds

The little queen was now aware of their peril and slipping from his grasp, jumped to his shoulder, spreading her wings and screaming defiance at the attackers. She was

so valiant, the little darling, so small in comparison to the wherries that her courage gave Piemur the impetus he needed. Dragondrums.

Gold firelizards are the dominant individuals in firelizard society. They are slightly larger and more intelligent than the lesser colours. Each gold has an attendant fair of the lesser colours, who will aid her in protecting her nest site from predators. The gold asserts her dominance both visually – by having a bright yellow-gold colour – and mentally over other firelizards. In this way she secures the best food, best nesting sites and the obedience of the fair. As with queen dragons, only fertile golds are dominant. An infertile gold (a juvenile, a post-reproductive gold, or a gold rendered infertile by illness or injury) will defer to a fertile gold.

In fact, a fertile gold will drive away any intruding golds who try to join the fair, because, unlike dragons, a firelizard community cannot be structured to accept multiple golds with one as senior. As her own gold daughters mature, they too will be driven away from the maternal fair. Occasionally a young gold may successfully challenge her dam (or inherit the fair if the dam dies from accident or predation), but usually she wanders for a while until she manages to secure a home range and fair of her own. Not many will succeed.

In addition, if a gold interloper manages to drive out the resident gold, she will also attack and drive out or kill any juvenile golds within the fair, as well as eating any unhatched clutches. She doesn't want her newly claimed fair wasting time and effort raising someone else's offspring! Nor does she want someone else's gold daughters growing up on her patch and potentially challenging her for it.

In the wild, a mature gold will have a home range in which to hunt and an inner 'core area' within this in which to breed. If two golds are in dispute over a breeding area or over a food resource, then both fairs will be involved and there are likely to be shrieking and swooping firelizards everywhere. If a show of strength doesn't succeed in driving away the interlopers, then members of the opposing fairs will fight. The main contribution of the greens, blues and browns will be noise and threats, however - bronzes and golds will do most of the actual fighting. And it is the outcome of the squabble between the golds that will determine which fair claims victory – lesser colours are mentally conditioned not to attack a gold, although they may bluff or back up their own gold's attack if called upon, as witnessed by bronze Rocky & Diver assisting Beauty to drive off gold Farli in *Dragondrums*. Dominant bronzes that are victorious in bronze-bronze fights may, however, switch fairs to accompany the winning queen if their own gold did not win the dispute.

One form of gold dispute that will not directly involve the other colours in the fight is a mating flight conflict. If one gold firelizard rises to mate too close to another's fair, there will be a fight akin to that seen between the queen dragons in *DragonQuest*. As the two golds will both be in mating frenzy, then the injuries inflicted in this battle may be more severe than those seen in a resource dispute, as neither gold is likely to back down and acknowledge the other as winner.

A gold who continually loses even low key fights with other golds is in trouble. Her fair will be low on the pecking order for any shared food sources or locally available breeding beaches, and may start to become malnourished (see the *Mortality* and *Cracked Hides* sections for some additional information on this). If this continues to the extreme, then first the greens and then the queen may stop producing clutches. A gold on a losing streak will find her fair gradually whittling away – either defecting to another, more successful gold, or succumbing to predators or parasites as the effects of a poorer diet and higher stress levels take hold.

Even the most successful gold can only spread her attention between a certain number of the lesser colours, so there is an upper limit to fair size of about 30. Firelizards will never come close to the situation in a Weyr, where the senior gold dragon rules over 400 or 500 subordinates. And, of course, the availability of food resources in the gold firelizard's home range will also put a restriction on the size of her fair: shorelines with abundant resources can support more firelizards per square mile. When a firelizard fair gets too large, either its size will be reduced by lack of local food to support it, or it will split in two as the gold loses her hold over some of the members. In the latter case, if there is a young gold near maturity in the fair, some of the lesser colours may 'defect' with her to form the nucleus of a new fair. If there is no second gold nearby, the dispossessed firelizards will disperse in search of one.

Younger golds who have just left their maternal fair will have to accumulate a fair of their own. Some of her birth fair may leave with the gold (see *Lesser Colours*, below, for further info), but the rest will be attracted and 'Impressed' to her as she proves herself a strong, viable leader by out-competing other golds, driving away predators and the like.

The question can thus be asked: when does a fair become a fair? Does a young gold with only a single blue in attendance truly have a fair? The answer is both yes and no. A 'fair' can be used as a collective noun for any congregation of firelizards, so a gold and a blue – or indeed a brown and a blue – are a fair, albeit a small one! However, a *breeding fair* requires the presence of a gold and at least one bronze (or brown – see below), plus a minimum of five of the other colours to act as helpers to guard the clutch and raise the young. (See *Reproduction* and *Hatchlings* for additional info on this). A queen without enough attendant helpers will not be able to fetch enough food for the hatching clutch, and simultaneously provide enough protection from predators. One or the other will have to be skimmed on, and the death rate will rise.



Lesser Colours

There were two bronzes, three browns, a blue and two greens. Menolly felt a little sorry for the blue. He seemed to be left out or picked upon by the others. The two greens were always scolding him. DragonSong.

Size differences between the different colours of firelizards is not as pronounced as it is in dragons. Browns,

greens and blues are smaller than bronzes, who in turn are slightly smaller than golds. All the colours reach maturity when they are about 2 Turns old. The smaller colours from a clutch mature a couple of months before the larger colours.

Males disperse when they reach maturity, seeking a new fair to join (and thus spreading genetic diversity). Rather than being driven away, as a newly mature gold is, the males get wanderlust and drift off on their own or in small groups. New bronzes may be readily accepted by another queen, but they'll still have to throw their weight around physically and mentally to assert their place in the bronze pecking order. Browns and blues have a harder time finding a place in an established fair, particularly the poor blues who are at the bottom of the social ladder. Their best hope is to find a young queen who has just left her birth fair and thus to become the nucleus of her first fair as she seeks to claim land of her own. Keen observers should therefore be able to tell a newly established queen, because she will have a preponderance of blues and browns in her fair, attracted from fellow wanderers.

Bronze firelizards will father many of the clutches that a queen lays – however, unlike dragons, brown firelizards are not noticeably lesser in stature and stamina to their bronze companions, so brown-gold matings will also be quite common. Bronzes therefore vie for the queen's favour much more intensely than the other males, as being in her good graces will often determine the outcome of a mating flight as much as physical prowess. The chances of a blue succeeding in flying a gold is remote and would require very unusual circumstances.

Because of their size and social dominance, bronzes will be foremost in helping the queen to defend her clutch from predators or other dangers. Browns will show due deference to the queen, but may also spend their time alternatively bullying or flirting with greens, as winning a green flight gives them a higher chance of reproducing – greens being more abundant and not so much in the centre of the bronzes' attention.

The whole flock of lizards suddenly went aloft, startled by the return of the queen and the bronze who had flown her. The pair settled wearily in the warm shallow waters, wings spread as if both were too exhausted to fold them back. The bronze tenderly twined his neck about his queen's and they floated so, while blues excitedly offered the resting pair fingertails and rockmites. DragonSong

Blues are the lowest rung of the firelizard social ladder. They get bossed around and bullied by all the other colours. Blues often appease the higher ranking 'lizards by bringing bits of food to the queen or bronzes. They will also be diligent in helping to feed the hatchlings from a new clutch. Because their low social status means that they are often on the edges of a firelizard group, the blues will also spend much of their time on alert, looking out for approaching danger.

Their low ranking also means that blues may choose to stay with their maternal fair rather than disperse when they mature. These stay-at-homes will help raise clutches of younger siblings and half-siblings, and mate with the local

greens, who are also related to them. Both these strategies are less risky than trying to find a new fair and a mate there.

Firelizard eggs contain equal numbers of males and females, so half of any clutch will hatch out green. Greens are more gregarious than queens: although greens will squabble for a position in the fair hierarchy, unlike golds they are tolerant of other members of their colour in the fair.

Greens tend to stay within their maternal fair when they mature, although they may accompany a gold sister when she is driven away by her dam. They split their time between assisting the resident queen with her clutch and looking after any eggs from their own risings, with the queen's eggs usually taking precedence. If a new gold encroaches on the holding of the old one, then the greens (and blues) will be the last to defect to the new queen. They'll stick with her longer if she is a relative (mother, sister, half-sister), than if she was an unrelated gold who Impressed them to her fair when she herself was an interloper. If the newcomer succeeds in totally displacing the old gold, she may Impress a number of local greens as she and her incoming fair rises in dominance.



Communication

Menolly had been aware of it first, because Beauty was chirping and squeaking at Merga through Lord Groghe's conversation... ...The discourse finished as quickly as it had begun. The two little queens flipped their wings closed on their backs and became totally disinterested in each other.

"What was that all about?" Lord Groghe demanded.
DragonSinger.

People tend to forget that firelizards are naturally telepathic. So as well as our five senses, 'lizards can convey messages and interact socially by mental means. Humans will be as oblivious to firelizard mental communication as they are to animal communication by scent. People who have Impressed firelizards will get a hint of it, but are still likely to miss the subtlety of telepathic and empathic communication between firelizards.

The firelizard communication that people *can* observe is visual, vocal and tactile. Firelizards emit a range of chirping, trilling and squeaking sounds, and some have been known to sing in accompaniment to human music. They are active little creatures, with the posture of wings, limbs, tail and head all enlisted to convey body language. Some mutual preening and affectionate rubbing also takes place between 'lizards.

A human's biggest clue to the emotional state of a firelizard is the colour of its eyes. Certain moods and emotions are characterised by particular colours. The speed at which the colours appear to whirl across the surface of the multifaceted eye indicates the intensity of the emotion.

- **Red:** Hunger or – in mating flight situations – desire
- **Yellow:** Fear
- **Orange:** Anger

- **Blue/green:** Neutral to good moods – contentment, sleepiness, pleasure
- **Violet/purple:** Anxiety, worry



Firelizard Memory

'Ask them about the three mountains, Ruth? Do they remember the mountains blowing up?' There was no doubt they did. Suddenly there wasn't an unbanded firelizard in the sky.

They remember the mountains, Ruth said. They remember fire in the air and fire crawling on the ground. They are afraid of the mountains. Men were afraid of the mountains. The White Dragon.

One of the major differences between the psychology of firelizards and of dragons is in memory. The rapidly fading memory of dragons was deliberately genetically engineered. Firelizards, on the other hand, not only have as good a memory as any other animal, in addition they have a race-memory that can provide them with vital information to increase their survival prospects (for threats to firelizards see *Defence and Mortality*).

Like a cat or dog, a firelizard has a substantial long-term memory. It will be able to recall a friendly human whom it hasn't seen for a Turn, remember that it likes the taste of a particular treat that is given to it rarely, and kick up a fuss if its owner tries to take it to the Dragonhealers because it recollects that horrible tasting stuff the Dragonhealers made it drink last time... A firelizard's normal day-to-day memory is limited only by its level of intelligence, much as a cat or dog's memory is. So it'll remember events and outcomes, but not necessarily cause and effect. Thus a tame firelizard may remember that Bob the Glasscrafter doesn't like it and chased it out of his workshop, but not that the cause of this dislike was it knocking over and breaking a glass vase.

Firelizard race-memory is inherited from its ancestors – though, given that firelizards are telepathic, some swapping of memories amongst unrelated lineages may also be possible. Race-memory can be treated as consisting of 3 parts: Local Information, Important Events and Natural Instincts. Local Information comes from its immediate predecessors – parents, grandparents etc – and consists of things like a mental map of the area, so that a newborn firelizard can successfully go *between* or find food from the moment that it has hatched. Important Events are unique and momentous occasions that affected large numbers of firelizards - such as the arrival of people on Pern.

Important Events memories need a trigger to activate them, and as such are most often localised. So for instance, in *The White Dragon* firelizards have quite happily been living in view of Two-Faced Mountain, but only remember the details of the eruption and go into a panic when asked about it. And no tame firelizard remembers the arrival of humans on Pern, as none of them are descended from firelizards from Landing (at least not recent generations, anyway). It is not until dragonriders return to Landing that the race memory is triggered in full.

The trigger will have to be fairly specific, too. The fact that Two-Faced Mountain is volcano-shaped is not enough – the volcano has been inert and harmless for most of its existence, so its mere presence doesn't bother the firelizards. Thus it is a geologist, not a firelizard/dragonet, that gives the warning that it is about to erupt in *DragonsDawn*. Similarly, in *DragonsDawn*, the dragonets are not worried by the appearance of the Red Star in the sky: it is a signal that danger is coming, but not the actual danger itself, and the creatures don't have humans' ability to relate cause and effect. However, as soon as they spot a cloud of Thread on the horizon, race memory is triggered and they take appropriate action, such as chewing firestone and trying to get their owners to shelter.

Thus firelizards who are native to Kadanzer Weyr's shores will not have a race-memory of Landing or even of the old Weyr erupting, unless they are the descendant of a 'lizard from Landing or the old Weyr. But the local firelizards may have a race-memory of the Ninth Pass tsunami, should anything ever occur to trigger that memory!

The third form of race memory – Natural Instincts – is much the same as instinctive knowledge in other Pernese and Terran animals. That is, things that the firelizard is born knowing (golds are dominant, chew firestone to make flame), can do perfectly first time it tries (fly, mate, produce flame, go *between*), or might take a couple of practice attempts before it has the complete hang of it (you bite spiderclaws just *there* to kill them).



Tame Firelizards

The little creatures were not as dependent on their handlers as dragons. They were quite apt to disappear between when bored or asked to do something they didn't feel like doing. They reappeared after an interlude, usually near dinnertime, evidently assuming people forgot quickly.

DragonQuest.

Firelizard hatchlings Impress to humans the way they would Impress to the wild fair of 'lizards present at their hatching. However, in the case of the 'lizard-human bond, they only Impress to one individual – the person that feeds them immediately after hatching. This appears to block the Impression to others of their own kind (otherwise tame 'lizards would be apt to come home with random hatchlings on occasion...!) When their human dies, the link is broken, and a tame firelizard will go "feral" and again be able to Impress to others of its own species. Only very, very rarely will a firelizard die at the same time as its human does – it's an event as rare as a pet dog on Earth pining to death after the loss of its owner. Even when it does occur, it is not likely to be a suicidal jump *between* the way a dragon does when its rider dies.

To an Impressed firelizard, their human is the "dominant gold" of their fair. Except that, unlike a wild 'lizard's link to its mother, this one won't fade over time and their "gold" won't ever try to drive them out of her fair as they mature or when the fair becomes too large for the local resources to support. Owners of gold firelizards may,

however, find that their pets become more bossy or badly behaved over time – as the gold matures, she may come to view herself as the dominant one in the fair and attempt to exert her rightful rule! Dragonriders who own gold firelizards may suffer less from this problem, as they have a draconic ally whose presence will remind the gold that she is quite low down the pecking order. If ever a person ends up with *two* gold firelizards Impressed to them, then they are likely to have to put up with more than the usual amount of firelizard stropiness as the pair vie for dominance. The owner of two gold 'lizards may be rather cranky...

Because firelizards regard their humans as a gold, it means that with patience and a little understanding of firelizard psychology a 'lizard can be trained to come when called, and to perform simple tasks and tricks. Training a firelizard can in some ways be easier than training a dog or horse, because of the emotional link to the pet that will reinforce positive behaviour. On the other hand, an owner who gets frustrated or angry that their pet isn't catching on to a new command fast enough will make the learning experience even more difficult for the firelizard.

It is also possible for a human to "lose" their firelizard or to drive it away. Cruelty or neglect of the 'lizard will cause it to spend longer and longer away from its owner. Eventually, as the creature matures, it will leave altogether and go feral.

Human communities like Weyrs and large Holds or Halls may have a great many gold firelizards living in close proximity, which would not happen in the wild. The golds may claim and defend little bits of pseudo-territory for themselves (such as regarding the owner's weycot as their 'core area' – see *When Is A Territory Not A Territory?*), or may time-share communal areas (such as basking spots on the roof of the Weyrhall), or space themselves out to avoid too many squabbles. Much as cats do when their owners aren't there to see what they are getting up to, gold firelizards will spend a lot of time squabbling to decide who is the local boss. Some of these tussles may be assertion of mental dominance by telepathy, rather than outright fights, but the outcome will be the same – the golds will establish a local hierarchy, and each lay a loose claim to some of the lesser colours as her 'fair'. And of course the gold at the bottom of the heap can always vent her frustration by bullying 'lizards of lesser colours, and the local feral golds.

When an owner takes a firelizard of any colour to a new location, their pet will often disappear to "play" with the local 'lizards. A great deal of this will be mental and aerial displays to establish themselves in the local hierarchy, and to work out who has the right to bask or forage where – for instance whether a firelizard that grabs a fallen piece of bubbly pie at a Gather gets to keep it for itself or is bullied by others until it drops the food or goes *between* to a safer location with its prize.

Tame firelizards will often congregate to hum at the hatching of eggs collected by humans, regardless of whether they are related to the clutch or even aware of the identity of the queen that laid them. This is again probably a misapplication of latent firelizard instinct in a human world. If disaster befalls the dominant gold of a wild fair (and there are no juvenile golds to step immediately into her shoes) then the fair may divert its parental attention to any green

clutches scattered around the territory. A big fair is a successful fair and a few green-descended hatchlings will be a welcome addition to their numbers until a new gold arrives to claim the vacant breeding area. Impressed firelizards – even Menolly's final count of ten – likely regard their human "fairs" as pitifully small and will turn up to recruit more members at a hatching. Fortunately for humans, unless they really mess up the feeding and Impression, the hatchlings will bond more strongly to a single human than to a disparate collection of tame 'lizard onlookers.

Human-bonded firelizards may also hum at a human birth, which is probably related to the fact that they view humans as being of the reproductive caste of "their" fair. Not all tame firelizards do this. For information on how humans react to firelizard mating flights, see *Reproduction*.

When a tame firelizard dies, the owner does not suffer the same depths of psychic damage and despair that a dragonrider does at the loss of their bondmate, but still may be deeply affected. Unlike Impression to a dragon, the depth of a human's bond to their firelizard can vary. If the human and firelizard are bonded strongly (i.e. the human is not cruel to the 'lizard, and the 'lizard is not a gold vying for dominance with the human), the loss of the latter will have a greater emotional impact than the loss of a beloved pet cat or dog would on Earth. Typically the death will result in a period of depression and/or grieving that is fairly strong. Whether a person grieves more for the loss of a pet, a parent or a wingmate, will depend as much on the personality of the person in question as it does on the depth of the bond to the firelizard.

The death of a firelizard is unlikely to be life threatening to the owner, unless he or she is very elderly or has a weak heart or some similar affliction.



Defence

Outside their dragonets were swooping and soaring, breathing flame to incinerate the attacking lifeform before it could reach the house. DragonsDawn.

Firelizards can teleport from danger: a tremendous evolutionary advantage for an animal. They have the ability to fly and go *between* from the moment they hatch, as witnessed by F'nor in *DragonQuest* and Menolly in *DragonSong*. In the wild, firelizards will remember and visualise places they have physically visited, and hatchlings will also pick up on mental images from others in their fair, and their race-memory will supply them with a mental "map" of the local area from birth.

Going *between* isn't just to escape danger – it is also a commonplace means of travelling. Whether a firelizard decides to fly direct or to teleport from one place to another, will depend on the relative energy costs of each form of travel – going *between* will be more efficient for long distances, flight for shorter distances. Teleportation is *not* a 'free' method of transport – the energy for a firelizard or dragon to do go *between* has to come from somewhere, otherwise it would have completely replaced walking, let alone an energy-demanding form of locomotion like flight.

Teleportation is also not a ticket to invulnerability. It confers a great ability to “dodge” an attack, but if you don’t see the attack coming in time, then you don’t get a dodge. Predators that pounce from ambush, or stoop at great speed like Earth’s peregrine falcon (to which there are analogous wherry species) will have a good chance of catching a ‘lizard before it can get away. Evidence from Lord Meron bullying his firelizard in *DragonQuest* suggests that it couldn’t teleport away while he was hanging onto it. It wasn’t until Canth startled him into losing his grip that the creature vanished *between*.

Two factors are in play in situations where a firelizard would attempt to go *between* to escape a predator’s clutches: the intimacy of the grip and the size of the predator. Firm contact with the firelizard, makes the predator (or an inanimate object like a message tube) ‘part’ of the ‘lizard in its mind, and it will attempt to carry it with it when it goes *between*. Similarly, dragons don’t leave the Thread that is scoring them behind when they teleport – they carry it with them. (Luckily for their rider and riding straps, otherwise a panicking dragon might accidentally leave them behind too!)

So if a small attacker – such as a small tunnelsnake or another firelizard – pounces, the ‘lizard can skip *between* carrying the attacker with it. Whether this is a successful strategy (as with Threadscore) or a panic reaction that kills both of them (as with gold dragons fighting), will depend on the situation and whether the firelizard has gone into shock from any injury inflicted. Lord Meron, however, was way too big for the firelizard to ‘carry’ with it as it went *between*, effectively rendering it ‘stuck’ and unable to escape. Firelizards thus can’t dislodge large predators, except by thrashing about and hoping the predator loses its grip. So if a large predator has already got a firm grip, then the ‘lizard is doomed. And obviously a firelizard that is asleep cannot teleport anywhere! The Pernese night will be stalked by nocturnal predators trying to sneak into firelizard roosts.

Another defence mechanism is the ability to metabolise firestone to produce a flaming gas – the “second stomach” used to break down the stone is actually a development of the wherry crop. All firelizard colours can flame; the inhibitions that prevent queen dragons from flaming were engineered into them when the dragons were first created. If a fair’s home range contains firestone, they can attempt to protect the gold’s clutch from Thread by flaming (see *Clutch Sites* for other dangers to eggs). If there is no firestone available locally, race-memory might be able to provide the firelizards with the location of a site some distance from their own home range.

In theory, flaming could also be used to deter predators, but an attack by a predator will not be as predictable as approaching Threadfall, so the ‘lizards will not have time to prepare by chewing firestone.

In addition to escaping *between* or flaming, firelizards can physically attack rivals or predators. Firelizards attack opponents by swiping at them with claws and wings whilst in flight. Biting is a more risky attack, as the ‘lizard is more likely to get grabbed when it attempts this. Fairs will engage in communal defences, such as the mobbing of predators. Attacks are led by the gold and the bronzes, but all colours join in.



Reproduction

The queen had led her swarm so high that the smaller ones, the blues and greens and browns, had been forced down. They circled now at a lower altitude, struggling to keep same direction as the high fliers. They dipped and dashed in mimicry of the queen and bronzes.

DragonSong.

Gold firelizards first rise to mate at about 26 months (or 2 Turns) of age, and thereafter at least twice a Turn. If food supplies are abundant and temperatures amenable to incubating eggs in beach sands, then golds may rise more frequently. Greens mature sexually at about the same time, and can theoretically rise as often as a gold, but may be socially inhibited from doing so by mental or physical harassment by the queen (particularly if she is a new gold and unrelated to the green), who would much rather the green assisted with *her* clutch than lay one of her own. Low food supplies will also inhibit greens from rising, as the gold and bronzes will hog the best food for themselves. Any female firelizard – green or gold – needs to be healthy and well fed to supply all the fats and proteins contained in an egg.

Bronzes are the usual winners of gold mating flights, although a brown may succeed now and then as they are not much different in size to the bronzes. Green mating flights are usually won by browns and blues, as there are few bronzes in a fair, and those are more attentive to the gold’s rising than the greens’. Some males will have few or no successes in the mating stakes – given the amount of competition in mating flights, it is quite possible for a male firelizard to live his whole life without ever out-flying his fair-mates.

Also worth mentioning here, is the reaction of a tame firelizard’s owner to a mating flight. Unlike dragon mating flights, humans Impressed to firelizards are not overwhelmed by the emotion and sexual desire of their pets. The owners do feel a wave of lust, and perhaps a lowering of inhibitions, but they are still in control of themselves. Firelizard risings create no impairment of judgement in the owners. They will not attempt to grope a random passerby, or rip the clothes off the nearest friend – unless they are of that predisposition already! The owners certainly don’t “black out” and wake up in bed next to a stranger. A male owner of a firelizard involved in a flight will likely get an inconvenient or embarrassing erection, and owners of both genders may wish to excuse themselves to the necessary or other private place for 10 minutes or so to avoid any public embarrassment from being flushed, flustered or breathing heavily. Dragonriders, who will have experienced the full emotional blast of their dragon rising, are likely to suffer less embarrassment and a higher ability to be able to ignore their firelizard’s feelings of lust.

Owners of lesser colours that are not directly participating in the flight (greens and blues during a gold flight, for instance), will feel their pet’s excitement, but it will be no stronger than the excitement experienced when the

creature finds a tasty tidbit or a fun plaything. Finally, firelizard mating flights are not as “loud” as dragon risings, so bystanders without firelizards will not be affected by lust or excitement at all. In *DragonSong*, for example, Menolly witnessed a gold firelizard mating flight from relatively close quarters without feeling anything other than wonder and pleasure at the sight.

Approximately 3 sevendays after mating, the female firelizard will lay her eggs. The laying can take several hours. Gold firelizards lay medium to large clutches. In canon, there were over 50 in the clutch that F’nor Impressed Grall from, 34 in the clutch Kylara found, 31 in the clutch that Menolly and T’gellan collected, and 21 in the one Piemur reported in *The White Dragon*. However, on Kadanzer’s version of Pern, gold clutches are usually 12 to 16 eggs, and never more than 18. Greens on the other hand lay very small clutches of around 4 to 6 eggs, which is canon from *The White Dragon*.

Unlike dragons, firelizards do not produce colour-coded eggs as an indicator that they contain a queen hatchling. The only indicator that an egg may contain a gold is size – both gold and bronze eggs being on average slightly larger than those of the other colours. However, even that is not a surefire prediction of hatchling colour.

On the other hand, gold hatchlings are far more common in firelizard clutches than they are in dragon clutches. Certainly from the evidence of the books, every clutch hatched ‘on screen’ contained at least one gold. As every gold daughter a queen produces will leave her parental fair and head off to try and claim a new clutching site of her own, gold firelizards have no need of the social instinct that queen dragons have to limit the number of golds in a Weyr to a number that can comfortably use the available Hatching Grounds without competition. Mortality is the big factor limiting firelizard numbers – see later for a discussion of this.

Green laid clutches never result in gold hatchlings. Greens can produce all of the other colours. However, there is a heavy bias towards greens and blues in green-laid clutches.

Between four and five sevendays after laying (that’s 7 to 8 sevendays after mating), the clutch will hatch. Firelizards hum at the imminent hatching of a clutch, just as dragons do. When a queen’s clutch hatches, the fair collects small prey items and feeds the emerging hatchlings, imprinting and binding them to the fair as they do so. This Impression is with the fair as a whole, rather than with one particular individual, although instinctively the newborns will give precedence to their gold mother and any juvenile golds still with the fair. Nearby ‘lizards may also bring food and hum at the hatching of a green’s clutch, but the event is unlikely to attract the attention of the whole fair.

The newly hatched firelizards will also need the protection of the fair, because a hatching event attracts predators such as wherries (see the *Mortality* section for more information), so many of the clutch may not make it to the imprinting stage. For a discussion of hatchling size and cannibalism at hatchings, see *Hatchlings*, below.

Clutch Sites

“Well, you see, queens instinctively return to their original clutching place and choose a free site nearby. Only I don’t know where that was.” Piemur, *The Renegades of Pern*.

Pernese popular culture once contained the idea that a queen firelizard Impressed to a human abandons her home and goes elsewhere to lay her clutch. Biologically this is bonkers (akin to the Earthly popular culture notions that lemmings throw themselves off cliffs, and elephants are afraid of mice). Firelizards are not Pacific salmon returning to their birth river to spawn and die. Nor are they caribou migrating en masse to a communal calving ground. An individual gold firelizard will have competed to attract a fair of lesser colours and for access to an area’s resources. The idea that she and her whole fair abandon this hard won resource – a place where she knows the lie of the land, the food sources, the likely places that predators lurk – and go to *someone else’s* home range to lay her eggs makes no sense at all. Natural selection would soon start to weed out golds that did this on a regular basis, and to favour those that laid their eggs on their own home ground, where she and her fair could adequately protect them.

What this “instinctively return to their clutching place” might really be is a glitch in gold behaviour brought on by Impression to a human – an aberrant behaviour that some, but not all, tame golds will show. If a gold views her human as the “dominant gold” of her fair, then that will put a mental kink in her reproductive instincts. One gold would not tolerate a second clutching too near her nest site, so the tame gold may find some secluded spot to “hide” her eggs from her human. In some cases this will be nearby, much as a green will lay her clutch within her gold’s home range but away from the prime locations for clutching. In other cases the gold may choose some faraway location – but obviously it has to be one that she knows the coordinates for, hence Piemur’s Farli choosing her birth beach. Of course, Farli could always be *lying* about where her eggs are (i.e. bluffing). Projecting a misleading mental image would “protect” the eggs from her human wanting to “eat” them! And equally, Piemur could be mistaken about the exact details of the images he is receiving – one sandy beach looks pretty much like another. Also, remember that firelizard images, being from a firelizard’s perspective and through its alien eyes, are sometimes difficult for humans to interpret correctly.

Another situation where a gold might travel a long distance to lay her eggs, is when her owner lives in terrain or climate unsuitable for firelizards to reproduce. Golds (and greens) whose owners live on the tropical shores of Kadanzer Weyr should have few problems finding a warm spot to nest in. Firelizards from the cold climate of Barrier Hold, however, will struggle to find any suitable natural sites and will have to go elsewhere or rely on artificial warmth (building a nest close to a kiln, for instance).

If a tame gold *does* lay her eggs at some distant location, she won’t have a fair to help her guard those faraway eggs, and they are very likely laid where a wild gold can find them or some other less than optimal site. Most



likely the whole clutch will perish due to a combination of: lack of protection from predators, discovery by a hostile queen, destruction in Threadfall, hatching cannibalism due to insufficient food gathered by their mother, not enough food locally to feed all the growing hatchlings, or lack of adult helpers to teach them to forage efficiently (like Menolly showing her 'lizards where to find rockmites in *DragonSong*). Lack of adult 'lizards to Impress on at hatching may also stunt the social development of these faraway clutches and make them less able to compete for feeding rights or clutch sites with their wild neighbours.

Other golds are more at ease with their human's presence near or around their eggs – or simply view themselves as the dominant member of the Impressed pair! Bear in mind that some firelizards are the descendants of generation after generation of Impressed golds: any gold firelizard that was content to have her human near her eggs, was more likely to have her gold daughters Impressed by humans in turn. Effectively these firelizards have been domesticated. These mothers will clutch locally, and even make use of suitable containers provided by their owner. Of course, a picky 'lizard may also choose an "unsuitable" container that their owner rather wishes they hadn't!

Tame firelizards are incapable of Impressing to their own clutches, which is just as well, otherwise the gold's owner might find him or herself with another 12 to 18 juvenile firelizards, all Impressed to their pet gold and expecting to find food in her home range – i.e. her owner's Weyr or Hold.

Even pet golds who do lay their clutch nearby may not be too happy with their human disturbing them. After all, if a wild gold discovered a stranger's clutch, she would likely eat the eggs or otherwise destroy them. The intention of the owner may be benevolent – to give the eggs out to appreciative new owners – but the tame gold may just view this as her eggs being stolen or being eaten.

What a queen firelizard – wild or tame – needs for her clutch is a sandy site that receives a lot of sunshine. There has to be enough sun each day to heat the sands adequately, but not so much that the eggs cook (though burying them will position them in sand that's cooler than the topmost layer). Also, the nights can't be too cool or the heat gained in the day will radiate away. The loose sand above the high tide mark on a tropical sandy beach is ideal, and the distribution of firelizards in the wild is largely dictated by the combination of such climate and terrain.

Because firelizard eggs are not buried too deeply – otherwise the heat of the sun can't penetrate the sand – they will not be safe from Thread falling on them. A gold and her fair therefore have to be able to protect their clutch from Threadfall. Before the advent of dragonkind flying each 'Fall as protection, evolution provided firelizards with a solution: chewing firestone and flaming the Thread.



Are Greens Bad Mothers?

"You know if greens weren't as stupid as they are, we'd be up to our ears in little green ones. And they're downright useless." Piemur, *The White Dragon*.

Given that even golds are going to lose the majority of their clutches and offspring, the idea that greens are bad mothers is mainly human bias – possibly coloured by attitudes to green dragons' flighty nature. A green's inability to raise a clutch (and the reader is invited to ponder on the fact that she only has to have 2 surviving children in her lifetime to be a successful mother in evolutionary terms) is largely because of her low position on the firelizard social scale. Golds can enlist the help of the fair to defend the eggs and bring food to the hatchlings. Greens are pretty much on their own unless the male they mated with takes an interest. The gold will also have claimed the prime site for clutching in the home range. The greens in her fair will have to compete with each other for less optimal sites, which won't increase their eggs' chances of survival much – in *DragonsDawn*, for example, Sorka identifies two nests as green because they are too close to the high tide mark.

The main threat to a green's clutch may actually be the gold who leads the green's own fair. A clutch of green firelizard eggs would make a tasty snack for a foraging gold. The act of the gold eating the green's eggs would also divert the green's maternal instincts from the deceased eggs to any clutch the gold has. The queen thus gains a double benefit from eating green clutches: she gains a meal and the bereaved green's parental effort will now be expended on helping to raise the dominant gold's offspring, not her own.

Natural selection has therefore given greens a different strategy to golds. Instead of producing the large clutches that queens do, a green lays half a dozen eggs at most. This is a lot fewer eggs than the slight body size difference between greens and golds can account for. A green is minimizing her investment in each clutch, because of the high risk that they won't survive to hatching. When her clutch dies, she can instead invest those saved resources in helping to protect the eggs of her local gold – who is likely to be her mother, sister or half-sister, so the green will share some genetic inheritance with the gold clutch she is protecting.

A green's instincts are therefore torn between looking after her own clutch and those of the local gold. Greens are far more likely to abandon their own clutches if there are gold-laid eggs or very new hatchlings to look after. Greens become a bit more maternal in circumstances where the fair has just been taken over by a queen that is unrelated to her (e.g. where her dam has been killed/driven off by an outsider gold). But even then, the telepathic imperative to obey the gold may overcome the green's drive to look after her eggs. And a new gold may actively seek out and destroy unhatched eggs – both green and gold – to consolidate her hold on the fair.

There is one final factor to consider in green clutches: mating with blues. Not all blue firelizards disperse at maturity (see *Lesser Colours*, above). A green firelizard that mates with a blue may therefore be mating with her own brother or half-brother. While a little inbreeding is generally okay in small animals with large mortality rates, it may be that these sibling matings produce a certain number of eggs that are sterile, or embryos that are not viable. If a green can sense that her eggs are 'not right' (no telepathic contact with

the proto-mind developing within, for instance), then she will abandon them.

Like tame golds, tame greens may or may not try to hide the location of their clutch from their owners. In fact, greens are more likely to do this, as they regard their human as dominant and thus highly likely to 'eat' the eggs. On the other hand, greens are likely to be easier to calm down than a gold when their owner discovers the nest. Once the green understands that the owner is *not* going to eat them, she may 'hand over' care of the eggs to her human (i.e. apparently lose interest in them) as the human is dominant and therefore much more suited to defending the clutch!



Hatchlings

From the two parts emerged a tiny creature, not much bigger than Menolly's hand, glistening brown and creeling with hunger, swaying its head back and forth and tottering forward a few awkward steps. DragonSong

She'd forgotten what a scant handful a newly hatched firelizard was. Her friends had grown so much since hatching.. DragonSinger

The instinct of a newly hatched dragon is to persuade its bondmate to give it food. The instinct of a newly hatched firelizard is to Eat Right Now! Patience and manners are not in a hatchling firelizard's mental vocabulary. Firelizards are born expecting to have to fight for the available food, so will frequently injure each other in their desperation to snatch a mouthful. If the adults in the fair have not provided enough food for the clutch, then the ravenous hatchlings may attack each other in desperation... and once they smell blood, a cannibalistic feeding frenzy can be the end result. In *DragonQuest*, F'nor witnesses a clutch turn cannibalistic due to lack of any food provided by the mother or her fair. No matter *what* happens on the Hatching Grounds, this is not a behaviour that dragons will ever display!

Possibly the gold in F'nor's clutch had died since laying, and without her to prompt it, the other adults don't bring any or bring sufficient food to the hatching. Of course, F'nor or Canth's presence a few hundred metres from the nest may have been what caused the adults to stay away in the first place! Or there could be a vicious circle here: underfed hatchlings are more likely to attack each other; the emotional turmoil from attacks and cannibalism disrupts Impression to the fair; adults in the fair are less likely to offer food to the hatchlings; the hungry hatchlings become even more likely to resort to cannibalism...

Of course, newborn firelizards are very self-sufficient from hatching, so some may avoid the cannibalism by going *between* to somewhere they hope to find food. This is what F'nor's Grall appears to have done in *DragonQuest*. But a probable food source is not a guaranteed food source – for instance the tide may be in, or the hatchling's jaws may not be strong enough to crack the shells of seafood that adults can easily crunch their way through, or they may be driven off by other hungry animals. Hatchlings also need a great

deal of sleep for their first 7 to 10 days of life, as noted by Menolly in *DragonSinger*, which will make them vulnerable to predators. For all these reasons hatchlings without adult (or human) helpers will have a very low survival rate.

As seen in the quote at the head of this section, a newly hatched firelizard is about the length of your hand from nose to tail. Its wingtip to wingtip span is a similar dimension. They grow very rapidly in the first 2 to 3 sevendays of life, by which time the differences in size between the various colours are becoming noticeable. After this initial spurt, the growth rate slows down. A firelizard will be at its full adult size at 10 to 14 sevendays old. It will be much longer – about 2 Turns – until the firelizard is sexually mature.



Mortality

But the wherries had not stooped yet, though they circled lower and lower with rapacious speed. The fledglings were voraciously attacking each other.

DragonQuest.

The Pern books give big clues to the 'nature red in tooth and claw' aspect of firelizards' lives. Cannibalism has already been mentioned - both the eating of clutch mates at hatching and the eating of eggs (see *Hatchlings*, and *Are Greens Bad Mothers*, above). Again, this is very different from any behaviour ever seen in dragons. Dragons are, from hatching, conscious of each other as intelligent and fully conscious 'persons'. A gold dragon would no more think of eating another gold's eggs, than a woman would consider eating another woman's baby. Firelizards have a more 'animal' or 'instinctual' mindset and therefore (to human eyes) a less 'moral' one.

Firelizards start dying off from the second they are born. In *DragonSong*, Menolly watches the new hatchlings fly out into Threadfall and get killed. The only ones that survived were those she fed in the cave. Given that the clutch had originally been laid on the beach, then it was the cave, as much as the food she provided that was the main life saver. Even the most protective of animal mothers usually know when to cut their losses (i.e. when to stop trying to save your offspring and start to save yourself instead). Abandoning one clutch to Thread and surviving to have another is a more sensible option than you yourself perishing while trying to feed your offspring during 'Fall.

Of course, if there is firestone available in the local area (NOT a certainty), that makes it easier for a queen to protect her clutch or hatchlings from Thread. And, given that Thread only falls in a location once every 50 days or so, then if she times her breeding cycle right, it may only threaten juveniles that are mature enough to flame.

A high death rate for 'lizards is nothing unusual – in fact it had better happen, or Pern will drown in firelizards in very little time. Imagine that a single gold and bronze pair produces 2 clutches of 15 eggs a year (average by firelizard standards). If every clutch contains a gold, and her daughters produce clutches of their own at two Turns old, then **if all her offspring survive** in a mere 25 Turns time there will be over 215 million firelizards descended from that single pair,

including some 14 million golds. And that's *without* any of the greens breeding successfully!

To keep the firelizard population stable, each green or gold only has to successfully get TWO breeding offspring into the next generation: one to replace her and one to replace her mate. Plus a few helpers to assist those two raising her grandchildren. Firelizards – like any small animal with a large litter size – are going to be dying in droves all over the place. Inexperienced mothers will lay their eggs in unsuitable places, eggs will get eaten by predators and other firelizards, hatchlings and adults will die of parasites, disease, starvation, injuries from firelizard squabbles and disputes, predators catching them, and the occasional *betweening* accidents (if herons can choke to death swallowing fish, and gibbons can fall out of trees and die, then firelizards can mess up coordinates!).

Young golds who have just left their maternal fair will suffer a high attrition rate. They are inexperienced at avoiding predators, and at winning fights with other golds. And if a young gold has not attracted any bronzes of her own yet, and gets too close to another gold's fair when she rises, she'll trigger a mating flight battle. Death from injury and infected wounds will be common for young golds.

Firelizards will also succumb to a number of parasites and diseases. Some infectious diseases will be firelizard specific, whilst others will affect related creatures, such as whers. Grooming – of yourself or by other members of your fair – will help to reduce external parasites similar to Earth's ticks. However, wild firelizards can be expected to carry the usual complement of internal parasites (tapeworms, flukes, etc) that every wild animal does. Most of these will be picked up from their food.

The Pernese perception of firelizard death rates is coloured by what they experience with their pets. Tame firelizards hang around human habitations, where predators (apart from cats, dogs, and a few types of tunnelsnake and wherries) are rare. Many get given free food, so they don't have to forage for themselves. The food may be cooked, or not contain the usual parasites that wild firelizards encounter – beef and mutton is not normally on the wild firelizard menu, for instance. Their owners oil them, so they don't have to put as much effort into caring for their own hide. If one is injured or falls ill, then both the mental attachment that the owner feels and the intrinsic value of a firelizard mean that they will seek some sort of veterinary care for their pet, be it a bit of numbweed the owners apply themselves or a consultation with a beasthealer or dragonhealer. Tame firelizards *will* die of some of the same causes as wild firelizards, but not nearly as often.

The maximum possible lifespan for a firelizard is 150 Turns. The vast majority of 'lizards aren't going to reach anything near that age. Most wild firelizards will die very young. However, a very smart, strong gold inhabiting an area with abundant and stable food resources *could* conceivably rule her fair for decades, if not for a century. Over that time she will have produced dozens and dozens of gold daughters, none of whom managed to oust her from her status as ruler.

Diet

With an almost peremptory screech, the gold female rose from the nest, swooping down over the heads of the bronzes and browns, dipping wings at the blues as she raced towards the sea. The others followed, not as gracefully, Sorka thought, as the queen, but swiftly. She saw them climb over the gently lapping surf and them suddenly dive at the waves, creeling triumphantly as they fished. DragonsDawn.

Firelizards are carnivorous by preference, but like dogs can digest many other foods, so they have a fairly broad diet. They do a lot of their foraging on the seashore, and will catch a range of fish and shellfish – such as spiderclaws, fingerlings and rockmites – in rockpools, the shallows or by digging them out of the sand or mud at low tide. They also search for food away from the beach, and eat things like worms, crawlers, carrion and any small creature they can catch, such as darters, treehoppers and small tunnelsnakes. Tunnelsnake and wherry eggs will also be eaten if they are found undefended or the 'lizard fair can successfully drive the parent away. Gold firelizards will also eat the eggs of a green, or of a rival gold, if she can get to them.

Firelizards don't store food – their attitude is 'eat it now because it might not be there tomorrow'. Firelizard owners can therefore find it tricky to train their pets not to steal unattended food from the dining hall or the kitchens.

Some treats that humans feed their pets may not be very good for them! The 'lizards may enjoy sticky sweet things like bubbly pie, or carbohydrate rich food like bread, but they may not do the eater's digestive system or general health any good. Even foods like beef are not normally on a small, seashore dwelling creature's menu, so a firelizard owner may end up with a constipated pet, or one that takes out its cravings for certain fats or minerals by chewing things or stealing food. Obviously this will be less of a problem for firelizard owners who live near the sea, as their pets can do a little foraging to supplement their diet.



Cracked Hides and Oiling

Lord Groghe's Merga was as tall in the shoulder as Beauty, but not so deep chested. The two were now exchanging compliments, stroking heads and touching curved wings. DragonSinger.

Wild firelizards don't have humans to oil them. If they want to keep their hides in good condition, then they need to eat foods that contain enough of the right sort of dietary fats for them to make their own, natural skin oils. Both wild and tame 'lizards spend a lot of time preening themselves and each other – this is to ensure that the natural oils they produce are spread evenly across their hide. Although their whole skin can secrete the necessary oils in small quantities, each 'lizard has patches on the underside and sides of the chin which can produce more if necessary. Firelizards will rub these patches over companions in



displays that combine affection and the practicality of mutual oiling.

Wild firelizards that have an inadequate diet will develop cracked and flaking skin that can develop into sores or other infections. Cracks are also dangerous when going *between*, and a badly maintained skin can be fatal. A wild firelizard which is not part of a pair (such as one that has just left its birth pair -see *Lesser Colours* above) may have trouble finding or retaining good feeding places and quickly develop an unhealthy hide. Tame firelizards can develop cracks for two reasons: firstly, newly Impressed 'lizards are usually being cared for entirely by a human owner, not a pair of their own species. No matter how loving and affectionate the owner is, human skin doesn't provide enough or the right sort of natural oils to "preen" a juvenile firelizard's skin into health. Secondly, the firelizard will be getting fed on scraps of human foodstuffs. These may be inadequate in fats or simply have the wrong sort of fats for the firelizard to successfully secrete enough oil – beef, for instance, isn't normally on a wild firelizard's menu. Feral 'lizards that live around the Weyr and feed on scraps won't have terribly good diets and have no humans to care for them, which might well explain why they always seem to look rather tattered in comparison to tame ones or truly wild individuals.

'Lizard owners can, of course, solve either of these problems, by oiling their pets' hides manually. A variety of animal and plant oils are suitable for this, as long as they will rub completely into the hide and not leave it slick or sticky (it should be like rubbing in a 21st century hand cream NOT like smearing the poor creatures in cooking oil!). Most 'lizards will thoroughly enjoy all the attention that a good oiling lavishes on them.



Flight and Aerodynamics

The brown dragon half-ran to the bluff edge, dropped down briefly to get wing room, and then surged up. Menolly felt herself pressed against the soft warm flesh and burrowed into the hide-clad back of her rescuer, struggling for a lungful of air to ease her tight chest. She had one brief glimpse of her little firelizards trying vainly to follow when the dragon winked into between. DragonSong.

Firelizards are moderately agile in flight. If we compare them to Earth animals, they will be less manoeuvrable than creatures who catch small prey in the air (small bats, swifts) or live in enclosed environments like woodland (various gamebirds and songbirds). They will be much more manoeuvrable than soaring birds like eagles or albatrosses. Firelizards are probably most similar to fast flying birds like Earth's pigeons, falcons or waterfowl.

However, firelizards and their relatives are not built exactly like either any of Earth's flying critters. A creature with a long tail like a firelizard's gains stability in the air (less likely to stall and fall out of the sky), but has correspondingly reduced manoeuvrability when compared to something with a short tail. In comparison to other Pernese avians, firelizards will therefore be less agile than any wherry species with a similar wing shape but a short tail. Some

wherries will therefore out-fly firelizards, either in speed, or manoeuvrability. Other wherries will outdo them in endurance flying, though firelizards can 'cheat' on this by going *between* to reach their destination. The predatory species of wherry that feed on firelizards will be of these faster or more agile types. (See *Defence* for more on avoiding predators).

As they are small and light, firelizards can take off from a standing start: they don't need to run to take off, as the heavier wherry species do. In addition, their small size means firelizards can also hover in place for a time. 'Lizards have a slightly easier time of this than Earthly birds like kestrels or Pernese wherries, as their telekinesis can assist in situations where frantic flapping and a strong headwind isn't enough to keep them aloft. However, this is tiring, so the firelizard won't keep it up for more than a few seconds at a time. Firelizards are not like the blurwings (Pern's equivalent of hummingbirds), which can hover for prolonged periods if necessary.

Firelizards can fish from the wing, making small dives into the waves to catch their prey. Like Earth gulls, they are only snatching fish from the surface few inches of water when they do this – 'lizards do not dive completely underwater like wherries such as Divers or some types of Whitewing.



Carrying Objects

The firelizards exploded into the air above her, squealing so shrilly that she looked up in alarm. They were grouped in a tight cluster, hovered just a split second while her eye took in their unusual formation, and then they parted. Something dropped. Automatically she held out her hands, and the multiple pipes smacked into her palms. DragonSinger.

Firelizards can carry objects in their talons, both in normal flight and when they go *between*. There is, however, a limit to what they can carry using either of these methods.

The limit on what a firelizard can lift by wing power is a biomechanical one. The same laws of physics that constrain what a wherry or an Earth bird can carry will constrain a firelizard: namely the design and aerodynamic properties of its wings. In order to take off, a firelizard's – or wherry's or bird's – wings have to be able to carry: (a) its own body mass, (b) the contents of its stomach and/or intestine when full, and, if it is female, (c) the weight of a clutch of eggs just prior to hatching. Firelizard wings will obviously have evolved to do all that, plus carry prey items and also have some safety factors built in. The heavier the object carried, the more the firelizard is going to be eating into those safety factors. So if a firelizard attempts to pick up a small pebble, it will manage it, but if it attempts to pick up a brick it will fail, and may injure itself trying (e.g. wrench a wing muscle or put its back out).

Some Earth bats can carry objects up to half their own body weight; and some Earth birds of prey have wings specially designed to enable them to carry heavier loads than otherwise might be expected for their size, so in a favourable

headwind an eagle can carry objects weighing up to its own body weight. For context, a pebble about the volume of my thumb weighs 25 grams (a smidgen under an ounce) on my kitchen scales. That's about the weight of an Earth house sparrow and about one third of the weight of a common starling. Firelizards are small and light creatures (otherwise people would be far less inclined for several of them to perch on them at once!), so they will not be able to lift huge loads. They *do* have the telekinetic ability that is seen in a much more advanced form in dragons, which will slightly increase the weight of objects that they can carry, but *not* to the extent that is seen in dragons (who need impressive telekinetic abilities to even be able to take off, let alone energetic feats like hovering). However telekinesis is not "magic" – it still takes energy to move objects around, regardless of whether it is by muscle power or telekinesis. The latter is more costly to use than muscle power. Owners (and writers) should remember this when fitting their pets with decorative collars or message harnesses – these should be light, or they will exhaust the poor creature as it tries to lug it around.

There are also limits on what a firelizard can carry *between*. Flying and teleporting both take energy, and again the latter is more energy expensive than the former (see *Defence* for more discussion of this). Carrying an object while teleporting takes even more energy than teleporting only yourself. Therefore firelizards are limited as to what weight of object they can carry *between*. If a firelizard catches a fish and wants to take it back to shore, the determining factor as to whether it flies straight or goes *between* will likely be this energy expenditure. Only if it is a long way to shore, will going *between* be more cost effective than flying. Of course, the situation may warrant going *between* even if it is energy inefficient – such as if there is a wherry trying to steal your newly caught fish.

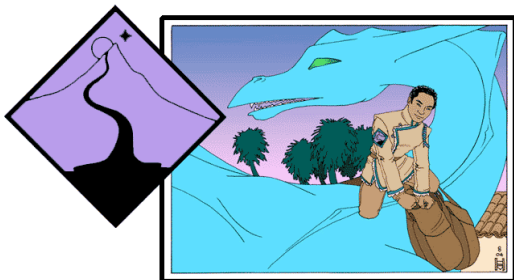
Similarly, it probably didn't need all nine of Menolly's firelizards to teleport her reed pipes, even if they were only juveniles. So perhaps the fair was sharing the effort of the transport... or maybe just being over zealous in their desire to be helpful.

For additional information on carrying things *between*, see *Defence*.



Thus while they have a lot of similarities with dragons, it should always be remembered that firelizards are *not* dragons in miniature. They have their own unique habits, behaviours and limitations. Also – unlike cattle and dogs – pet firelizards are not domesticated, only tamed. They have only relatively recently (since the Ninth Pass) been living

with humans, so have not had their behaviour and physical characteristics altered by generation after generation of selective breeding to fit in with human wants and human lifestyles. Indeed many firelizards around Kadanzer Weyr will have wild parents. 'Lizards will therefore display a lot of natural and instinctive behaviour, which may not be to their owner's benefit or desire. Having a firelizard as a pet will be more akin to owning a tame cheetah or tame wolf than a cat or a dog. And one with a lot of wild neighbours to socialise and learn 'bad' habits from, at that!



Kadanzer Weyr

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