ISSN: 2342-2009 Fafnir vol 3, iss 2, pages 25–38

Fafnir – Nordic Journal of Science Fiction and Fantasy Research
journal.finfar.org

”Blue skies, green grass”: Is *The Redemption of Althalus* a reliable biological record?

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Abstract: This paper investigates whether high fantasy worlds can be naturalistic. After a brief introductory analysis of the Lonely Mountain in The Hobbit*, discussion turns to* The Redemption of Althalus *by David and Leigh Eddings. References were collected to flora and fauna from the secondary world of the novel. These references were tested as a collection in terms of: (i) whether they have internal coherence (i.e. verisimilitude) and (ii) whether the observations are likely to be based on primary world experience. The study found that, in general, the species actually observed by characters in the text passed both these tests. Species used only for figurative reference (i.e. not actually observed by any character) failed these tests. The biology of* Althalus' *secondary world is predominantly based on the primary world western forested mountain ecoregion of the United States, where Eddings & Eddings lived.*

Keywords: Ecocriticism, digital humanities, naturalistic, Eddings, Althalus.

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The Hobbit film trilogy (2012–2014) is the fifteenth highest earning movie franchise of all time (Nash Information Services), with a box office record equivalent to *Twilight* (#13) or *The Hunger Games* (#16). According to those involved, one of the biggest contributors to the success was the carefully modelled and CGI enhanced Smaug the dragon, who is a “rock star” character and the “biggest reveal” of the films (Sibley 161). Tolkien's writings suggest, whatever else he may have thought, that he would have liked the focus on Smaug, since for him, successful fantasies were defined by their immersive and believable secondary worlds, and spoilt by poor special effects if on stage (“On Fairy-Stories”). From that perspective, the focus of this article, which is on “naturalistic”[1] rather than fantastic elements of fantasy fauna and flora may appear misguided. Previous ecocriticism has praised fantasy for its subversive and environmentalist approach, whilst assuming that it is, by definition, opposed to actual nature writing (Ulstein). Le Guin argues, (partially following “On Fairy-Stories”) that one of the main appeals of fantasy is its ability to construct a country which never existed, beyond the dominion of humanity, and Siewers suggests explicitly that Middle-earth can be read as an ecocentric pastoral retreat. Whilst I do think these

[1] This paper uses the adjective ‘naturalistic’ to refer to settings which are set in environments which are recognisable from the primary world rather than secondary world environment original to the author (Auger 196). Obviously all created worlds are both secondary and based on primary world experience to some extent, but scenes are (subjectively) called naturalistic when they appear especially close to primary world models.

readings have some value, this article will argue that there is more to fantasy secondary worlds than realms dynamically opposed to “realistic fiction” and “entirely the invention of human imaginations” (Le Guin 87).

From an ecocritical point of view, fantasy is interesting in that it often conveys a strong sense of place to readers. This is partially because of the so-called “blue skies, green grass” writing convention: fantasy authors may describe strange events and characters but base this action in a familiar secondary world, populated from their own primary world experience (Thomas). The naturalistic tendency of fantasy world-creation is protected in part by “verisimilitude of setting”. Verisimilitude means that secondary worlds are required to fit together naturally and cohesively in the reader’s mind (Tolkien, “On Fairy-Stories”; Auger 328). Although fictional settings have the potential to maintain cohesion far from the author’s primary world experience (e.g. Verdaguer), most popular fantasy tends to be predominantly based in a setting the author has familiar with, meaning, in practice, a western European or North American world with medieval trappings (Thomas; Swank 164). Inventing an entirely new fauna and flora beyond a few token monsters takes considerable effort, and may still achieve a less naturalistic feel than using an existing and well-known biome (Tolkien, “On Fairy-Stories”).

For example, although Smaug is the most famous denizen of the Lonely Mountain, he is not the only inhabitant of the mountain in the original book. Two important birds also live on the mountain; an unnamed thrush and a raven, Roäc son of Carc, whose clan were formerly close allies to the dwarves of the Lonely Mountain (Tolkien, *The Hobbit* 218–19). The sight and sound of Roäc in particular seems to be nostalgic to the dwarves old enough to remember the Lonely Mountain as their home (especially Balin and Thorin). There are medieval folkloric comparisons to this motif (Pheifer; Pilch), but perhaps it is also a natural one, since the sound of old familiar birds continues to be a resonant and nostalgic one for individuals today (Whitehouse). That the dwarves go on to converse familiarly with Roäc (in the book) does not absolutely take away his status as a naturalistic bird. Various species of wild bird other than parrots can learn to mimic human speech, including ravens, and these were commonly kept as pets in the pre-industrial period (Walker-Meikle 15–16, 69–70). I would argue that the presence of these birds is not supposed to exotify the Lonely Mountain, it is supposed to help localise and familiarise it in the English countryside as part of England’s new mythology (Siewers 142; Wainwright 13–14; Hunt).

The main purpose of this article is to test this apparent naturalising urge in another secondary world. David Eddings is one of several bestselling fantasy authors requiring further study (Thomas). David Eddings work (1931–2009), along with that of his unacknowledged (Eddings and Eddings, *The Rivan Codex* 19) co-writer Leigh Eddings (1937–2007), is praised especially for its openness to new readers (Thomas). The secondary worlds of Eddings & Eddings particularly reward an ecocritical reading because, just like Middle-earth, they are characterised by a strong sense of landscape and vivid descriptions of environment, for example:

> They pushed on through the yellow foothills for the rest of the day and camped that night in a well-concealed little canyon where the light from their fire would not betray their location to the brigands who infested the region. The next morning they started out early, and by noon they were in the mountains. They rode on up among the rocky crags, moving through a thick forest of dark green firs and spruces where the air was cool and spicy. Although it was still summer in the lowlands, the first signs of autumn had begun to appear at the higher elevations. The leaves on the underbrush had begun to turn, the air had a faint, smoky haze, and there was frost on the ground each morning when they awoke. The weather held fair, however, and they made good time. (Eddings, *Magician’s Gambit* 115–116)

This passage from *The Magician’s Gambit* in the *Belgariad* series demonstrates the strong naturalistic and localising features of Eddings & Eddings’ secondary worlds. The passage possesses a rich vocabulary of natural terms (“foothills”, “canyon”, “crags”) an evocative flavour (“cool and spicy”, “smoky haze”) and suggestions of personal experience (“first signs of autumn… at the

higher elevations", "thick forest of dark green firs and spruces"). Reading passages like this suggests to me that Eddings & Eddings' secondary worlds may be considerably influenced by their primary world, despite the presence of more fantastical elements, like, in this passage, the brigands.

The secondary world of *The Redemption of Althalus* (Eddings and Eddings 2000; hereafter *Althalus*) was selected as this study's base because it is the authors' most popular stand-alone novel, which facilitates the digital search part of the methodology (see below). From an ecocritical perspective, the story is full of pastoral tropes: A Bronze Age thief, Althalus, is hired to steal a magic book from "the House at the End of the World". After some initial adventures Althalus finds the House, only to be imprisoned by a talking cat which he calls Emerald. Emerald teaches Althalus to read the magic book he was hired to steal, and converts him to fight against her brother, Daeva[2]. Learning to read and use magic takes Althalus over two thousand years, but since the House at the End of the World is outside of time, Althalus does not age. When he finally leaves the house with Emerald and her book, civilisation is in a quasi-medieval period. One of the most iconic scenes of the book describes Althalus' bewilderment as he re-explores[3] the world he once knew.

> There were villages here and there in the deep wood of Hule now, and that offended Althalus. Hule was supposed to be wild, but now grubby little men had come here to contaminate it. The villages were squalid-looking collections of rude huts squatting on muddy ground and surrounded by garbage. They weren't much to look at, but what really offended Althalus were the tree-stumps. These wretched intruders were cutting down trees.
> 'Civilisation,' he muttered in tones of deepest contempt.
> 'What?' Emmy asked.
> 'They're cutting down trees, Em.'
> 'Men do that, pet.'
> 'Little men, you mean. Men who are afraid of the dark and invent new ways to talk about wolves without actually saying the word "wolf". Let's get out of here. The sight of that trash-heap makes me sick.' (Eddings & Eddings, *Althalus* 89–90)

The lexical field of pollution ('garbage', 'trash-heap', 'muddy', 'grubby', 'contaminate') is reminiscent of the 'toxic-consciousness' of earlier novels where civilisation is seen to be a post-natural phenomenon which has depleted the world's natural resources (Deitering). We can compare the above description to the description of pristine Thule as Althalus knew it in the Bronze Age:

> There's a hushed quality about the vast forests of Hule. The trees of that land of the far north are giants and a traveller can wander under the endless canopy of their outspread limbs for days on end without ever seeing the sun. The trees are evergreens for the most part, and their fallen needles blanket the ground in a deep, damp carpet that muffles the sound of a traveller's footsteps. There are no trails in the land of Hule, since the trees continually shed their dead needles in a gentle sprinkle to cover all signs of the passage of man or beast. (Eddings & Eddings, Althalus 19)

Thus from an ecocritical perspective *Althalus* can be read as simple nostalgic novel which embodies a pastoral yearning for a world seems to have been irretrievably lost, after Le Guin. Later, after ending the threat from Daeva, the novel ends with Althalus returning to the house with Emerald, never to return again *(*Eddings & Eddings, *Althalu*s 409–10).

However, contrary to Le Guin's arguments, this novel's nostalgia appears to be embodied in the naturalistic primary world flora and fauna which populates the secondary world of the novel. The rest of this paper aims to objectively answer one simple question: Is *Althalus* dedicated to an

[2] Daeva lives in Nahgharash, a realm of flaming buildings and rivers of fire and wants to destroy all living things whereas Dweia (Emerald) lives in the House at the End of the World and is a Mother Nature / fertility figure.

[3] *Althalus* makes an interesting contrast to the *Belgariad* in that the narrative journey is less linear; places are revisited and there is no ultimate destination. Considering the links between journey type and character development (Hunt), the reason for this may be because Althalus is not a coming-of-age tale.

imaginary green space which never was (after Le Guin)[4] or is it, as suggested by our close reading, a naturalistic picture of the modern world which Eddings & Eddings actually inhabited. In terms of motivation, the first reading might imply an urge to escape the modern world, whilst the second might imply an unwillingness or inability to leave the natural world, even in the creation of a new one.

Methodology

The objective analysis method I use to study *Althalus* is from the digital humanities. It is a simplified, small-scale form of the distant reading quantitative experiment explained by in “Conjectures on World Literature”. I have a hypothesis; that *Althalus* describes a predominantly naturalistic rather than a fantastic flora and fauna, and that it is based on the author’s experience. Although we found some value in this hypothesis from our brief reading of Middle-earth, it is worth stressing again that this is not the general rule for fantasy as discussed by Le Guin, and suggested by a consideration of the fauna and flora of influential secondary worlds like *Harry Potter*, and *The Chronicles of Narnia*.

In order to test this hypothesis I will be measuring a unit much smaller than the text (Moretti 48–9): how many times each species of flora and fauna is described[5], like Moretti (53 n.19). The fauna collected from the books can be evaluated for its internal cohesion and the question of how likely the species are to be based on Eddings & Eddings experience can be answered. If the fauna in *Althalus* is based on its authors’ experience, this suggests that some fantasy secondary worlds may be more mirrors of the primary world than imaginary, nostalgic creations.

An electronic version of *Althalus* was obtained (Harper-Collins ebooks, 2013 – a digitised version of Eddings & Eddings (2000)) which allowed searching for individual words and phrases. A series of electronic searches for culturally common species of animals and plants was supplemented by a series of manual searches and complete read-throughs. This resulted in a list of flora and fauna nomenclature, each with a number suggesting how many times each term appears in the text (see Appendix).

Hypotheses

Hypothesis 1: References to fauna and flora in *Althalus* are coherent and naturalistic (i.e. there is verisimilitude of setting)

Hypothesis 2: References to the fauna and flora in *Althalus* reflect species of which the authors had experience

Null Hypothesis 1: References to fauna and flora in *Althalus* are not coherent and naturalistic (i.e. there is not verisimilitude of setting)

Null Hypothesis 2: References to fauna and flora in *Althalus* do not reflect species of which the authors had experience

Hypothesis 1 will be accepted if the species referenced in the landscape of *Althalus* predominantly reflect species found together in the primary world (e.g. a lion hunting a gazelle). It will be rejected, and Null Hypothesis 1 accepted if the species do not realistically and coherently fit together, (e.g. if there is a lion hunting a kangaroo).

[4] This also appears to be Edding’s opinion of the secondary world of the Belgariad which he calls a “place that never was… and is probably a geological impossibility.” (*The Rivan Codex* 11)

[5] Use of primary world biological species need not mean that a world is naturalistic by itself, but I believe it to be an easily measurable indicator of naturalistic style.

Hypothesis 2 will be accepted if the species referenced in *Althalus* are predominantly based on Eddings & Eddings' experience (e.g. a grey squirrel in a conifer tree). Hypothesis 2 will be rejected and Null Hypothesis 2 rejected if the species are not based on Eddings & Eddings' experience (e.g. there is a dragon sheltering beneath a gum tree.

Hypothesis 2 is harder to prove or disprove. Eddings & Eddings were private and we do not know how often they travelled[6]. However, we know that the two spent most of their adult lives in the western United States (Spokane, Washington; Denver, Colorado; and Carson City, Nevada) (Fiedler), although Leigh Eddings was born in Westmoreland County, Pennsylvania (Biggs and Biggs). Hypothesis 2 therefore anticipates the secondary world of *Althalus* being based on a primary world familiar to both authors. Since they were settled in Carson City, Nevada (at the edge of the Sierra Nevada range) when they wrote *Althalus*, the most likely influences are the habitats there; forested mountain (western cordillera) and cold desert; which are also the two ecotypes around Spokane, David Edding's childhood home (Epa.gov).

Results

In total 911 references were catalogued to species of fauna and flora. These 911 references made up only 71 species, since many references were to the same species (e.g. 32 to "wheat" alone) and sometimes multiple terms were used for the same species (e.g. "dog", "puppy", "hound" to describe the domestic dog). The raw data is available in the Appendix.

I have divided the 71 species into four categories for ease of consultation. There is a category for wild animals, one for wild plants, one for domesticated / cultivated animals and plants, and a final category for figurative references only. I use the term "figurative" to widely pull in any species not actually ever witnessed by a character in the story, but just used for metaphor or imagined by the characters (e.g. animal star signs).

[6] David Eddings claimed he was not fond of travelling in *The Rivan Codex* (1), but there is some suggestion he might have travelled more when he was younger.

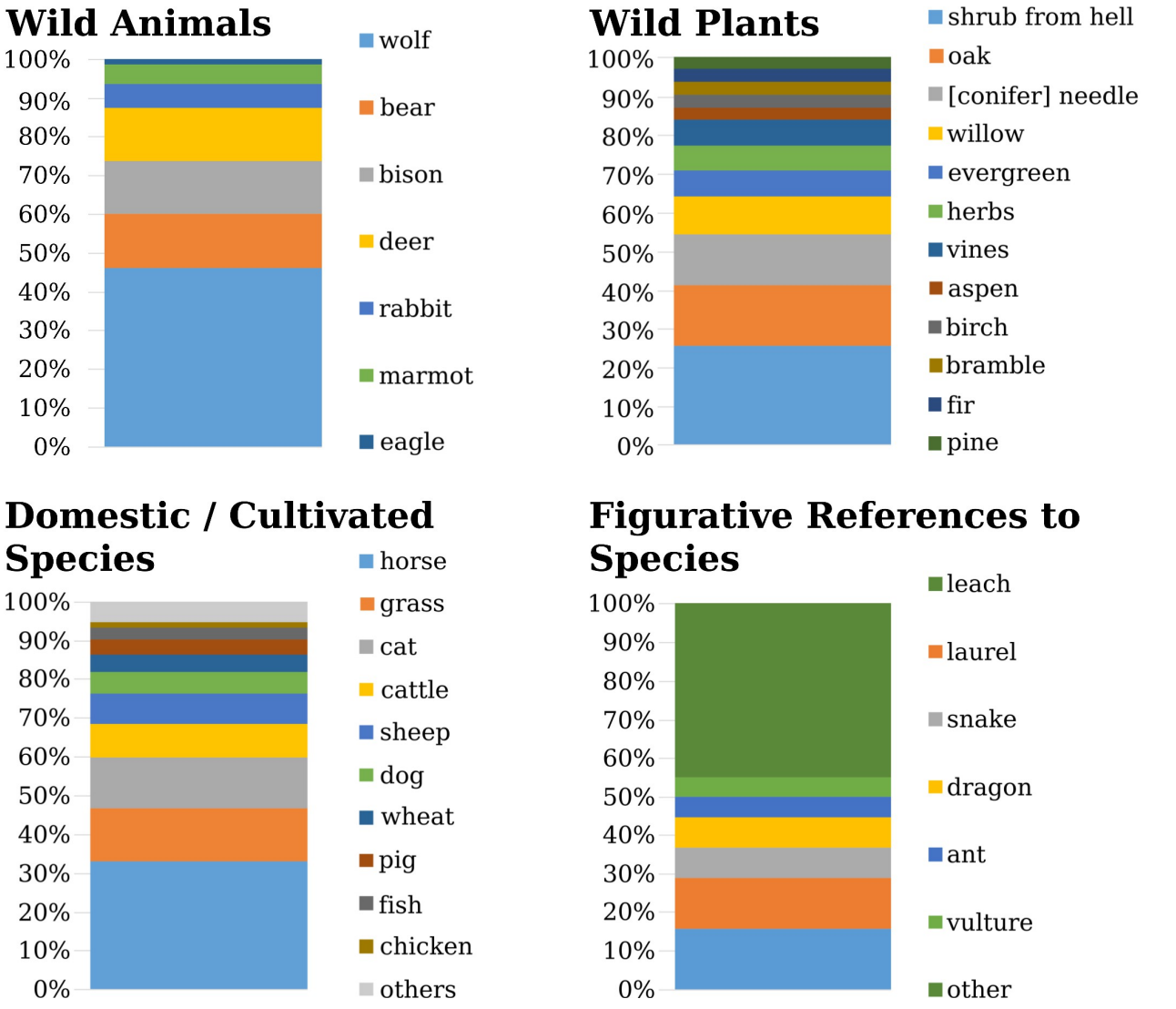

Chart 1, 2, 3, and 4: 1) Wild Animals, 2) Wild Plants, 3) Domestic / Cultivated Species, and 4) Figurative References to Species

It is not clear from these charts but important to emphasise that, from pure numbers of references alone, the world of *Althalus* is a very human one, and one dominated by humans and their domesticated animals (horses (237 references), cattle (62), sheep (56).

The book often describes wildlife which exists solely in processed form. No-one ever sees a living fish, but fish (22) is the second most commonly eaten reference after wheat (32), since the livestock seen are often alive. The most common kind of wild plant is the “shrub from hell” (8), a species Eddings & Eddings invented. The overall environment of the book is not a natural habitat but the chaotic human world which draws natural resources from across the world and beyond.

However, if we turn away from the human-dominated domestic / cultivated and figurative landscapes, *Althalus* does describe a coherent wild ecoregion. Despite the action of the book moving across several countries, the species that are left over when we leave the domestic animals and cultivated crops are almost all found in the western cordillera (ecoregion 6.2 see: (Epa.gov)). From a subjective standpoint, this corresponds well with some of Eddings & Eddings most evocative passages, like the examples in the introduction.

This ecoregion is not only coherent and naturalistic, it matches with the biographical details we have for Eddings & Eddings as given in the Methodology section. The environment of *Althalus*, especially the environment of the past at the beginning of the book, is dominated by wolves (37 – see further down), bears (11), forest bison (11) and deer (11). The trees are either evergreen (2) conifers (4) like pine (1), or deciduous like oak (5), willow (3) aspen (1) and birch (1). There are also rabbits (5), marmots (4), hares (1), eagles (1) and squirrels (1). Even the livestock references to some extent match Eddings & Eddings' personal experience. Except turkey, all the most common North American meats are present: pork (5), bacon (6), ham (5), beef (9), chicken (as a food: 4). Sheep are also present in the text, but they are only seen alive or used figuratively; no lamb/mutton is ever eaten. This perhaps reflects the comparatively lower importance of sheep in the meat industry in the United States of America (the latest inventories (NASS) show 30 million beef cows, 67 million hogs and pigs and 50 billion pounds of broiler chicken were produced for meat in the last year, but there are only 5 million sheep and lambs in the country.

As far as we know, Eddings & Eddings never lived closer to the coast than Spokane, in the far east of Washington. Therefore it is also interesting to note that although the ocean is discussed as being present, no-one ever sees a beach. This may reflect the authors' experience. The book contains many references to snow (42) but none to sand. The only coastline visited is described as 'the edge of the world' for half of the book. The mountains there do not fall away into shore lines, but are cut like a precipice. The sea is so far beneath the mountains it is never even seen until it freezes and rises. There are no canals but there are lakes (10), and streams (8). There are [mountain] ridges (15), canyons (5) and foothills (12) but no marshes, bogs or dunes. There is one reference to the temperature being 'hot' but twelve to it being cold.

This evidence should not be stretched too far. Clearly Eddings & Eddings had seen beaches and coasts before. There are memorable passages in the *Belgariad* and *Malloreon* (Eddings & Eddings more famous series) spent in ecoregions like the Mrin Marsh fenlands, the desert Wasteland of the Murgos and the Wood of the Dryads, or travelling across the open ocean by ship. My argument is that the upland-bias in Eddings & Eddings' work suggests a preoccupation with their mountain ecoregion, I am not trying to imply an extreme environmental determinism.

It is also clear that the species in the book are not all drawn from primary world experience. In particular, the figurative species Eddings & Eddings chose are not drawn from a single cohesive ecoregion. Although all the most common species they use as comparisons can be found commonly across much of the world, they use several species figuratively which they are less likely to have been personally familiar with. Suggesting that *Althalus* is dominated by evergreen conifers (2+4) and temperate oak (5) and willow (3) requires us to first discard the two most common kinds of wild plant. 'The shrub from hell' (8) is a fictional species, but talked about with other wild plants, and laurel (5) only appears in the story to provide figurative descriptions. The legendary dragon (3) appears in the story as often as ordinary snakes (3), since the dragon is a star sign. Exotic melons (1) and tigers (1) appear to furnish figurative descriptions as well. In *Althalus* these species are never described as actually growing or seen by characters, but they are used for metaphors and in characters' dreams. Clearly the secondary world *Althalus* is set in, although very similar to the forested mountains ecoregion Eddings & Eddings lived around, is not actually our primary world. The presence/absence of species in *Althalus* is not, by itself a reliable guide to the wild fauna of Eddings & Eddings' primary world. Literature where the secondary world is intended to be a transparent version of the primary world does not have this problem and may be more trustworthy for determining presence/absence.

Before concluding, it is worth briefly tracing the limitations of the distant reading style used here. Although the methodology appears to have worked well at objectively assessing the degree to which Eddings & Eddings' style is naturalistic, it missed features which are more obvious to a close reading. For example, Hunt has pointed out that although English fantasy is often deeply influenced by the English landscape, fantasy authors are not just drawing on the objective geography of the landscape but also the national psyche and cultural imagery of the landscape. We saw this in the

preoccupation with pollution in our reading in the introduction, but a distant reading can have trouble anticipating details like this.

Further, in common with many other fantasy stories, the plot of *Althalus* extends temporally as well as geographically. There is a Bronze Age time period which the main character is originally from and a medieval time period where most of the action takes place. Some of the species seen in the story, especially forest bison (11) and marmot (4) are seen only in the past (Bronze Age period). The wolf is a common species in the past, but there are actually more examples of the wolf as a star sign than an animal in the contemporary (medieval) time period of the book. This part of the story helps demonstrate how an author's experience can be tempered by their imagination of what species "should be present". Generally game is eaten in the past and farmed meat in the medieval era. At times this unconscious and nostalgic awareness of biodiversity loss is made explicit. The following passage comes where Althalus introduces a young protégé to the Thule of the Bronze Age:

> The dawn came up murky and sullen over deep-forested Hule, and Althalus and Gher rode east among the gigantic trees.
> 'We need to watch out for wolves,' Althalus cautioned.
> 'Wolves?' Gher sounded a bit surprised. 'I hadn't heard that there are any wolves in Hule.'
> 'There were – are – now. We're in a different Hule right now. This isn't the place you're familiar with. It's a bit wilder than it's going to be later on. The wolves shouldn't be much of a problem, since we've got horses this time, and we'll be able to outrun them, but keep your eyes and ears open.'
> 'It was real exciting back then wasn't it?'
> 'It had its moments.' (Eddings & Eddings, *Althalus* 693–694)

It seems indicative of Eddings & Eddings' opinion of the matter that the presence of wolves is celebrated as an exciting and lost feature of the environment by the characters, even while the animals themselves are acknowledged to be a potential threat to human life. Gher is not terrified by the news, he is just momentarily surprised. His later suggestion that their presence is exciting is informed by Althalus' experienced pragmatism [7]. This symbolism also fits with Eddings & Eddings' primary world. Wolves were hunted to extinction in Nevada, where Eddings & Eddings lived most of their lives in the 1940s, but are currently recolonising the western United States. They had reached Washington, David Eddings' native state before he died (US Fish and Wildlife Service). The pastoral tone of *Althalus* suggests that Eddings & Eddings may have been in favour of this 'rewilding' of the state.

Althalus: A Reliable biological record?

From our study, it is clear that the secondary world of *Althalus* is more than an anxious ecocentric green space constructed by human imagination (Le Guin; Siewers). The wild animals, wild plants and domesticated species we have collected in *Althalus* are internally coherent. This by itself suggests an authorial interest, whether conscious or unconscious, in naturalistic writing. However, internal coherence may also be shared with secondary worlds which are more fantastic in nature. It is perhaps more interesting therefore that the species collected are consistent with the primary world of Eddings & Eddings, albeit a nostalgic version of the world with wild wolves and bison. The secondary world of *Althalus* appears to be based, at least partially, on the experience of its authors without them being aware of it (Eddings and Eddings, *The Rivan Code*x 11). They describe a mixture of extensive human cultivation and a forested mountain wilderness.

[7] Given the rarity of wolf attacks on humans (Linnell et al. 731) perhaps even more pragmatic advise is given by Eddings through Belgarath in *King of the Murgos*: 'Believe me, I know wolves. No self-respecting wolf would ever even consider eating a human.' (Eddings, *King of the Murgos*)

These findings validate our starting prediction that, despite its fantasy genre, *Althalus* still maintains verisimilitude of setting. Beyond this, the setting of the text seems to be local and personal. This is interesting because one of the key differences between high and low fantasy is the creation of a secondary world (Stableford 198). Further, high fantasy is often criticised for its derivative cultural homogeneity, and cliché focus on European feudalism (Swank 164, 178). The fauna of *Althalus* cannot be described like this. It is local and derivative rather than vague or inventive. The marmots and bison described by Eddings & Eddings would never have been included in the English countryside inspired *The Lord of the Rings*. On the other hand, *The Lord of the Rings* included species like beech (8), heather (11) and hedgehog (1) reflecting Tolkien's own homeland which Eddings & Eddings would be less likely to include. Both books included wolves, extirpated in the authors' primary worlds.

However, there is an exception to the general rule of primary and secondary world biologies coinciding. Although the species actually witnessed in the story are present in the primary world, the figurative references do break verisimilitude of setting. Eddings & Eddings can refer to melons and tigers in metaphorical description despite the characters presumably never having seen or even heard of these species. Figurative references do draw on a homogenous body of set phrases, and suggest cultural currency rather than perceived verisimilitude.

This suggests a difference in reader expectation for verisimilitude level in different types of reference. We can explain this by contextualising the references in the hierarchal order of evidence:

Table 1. Stages removal between animal and audience

Stage removal between animal and audience	Example	Reliability
0. Actual Specimen Animal>audience	The body of a squirrel in the woods	Overwhelming evidence
1. Witness account Animal>**observer**>audience	'I saw a squirrel in the woods'	Strong evidence
2. Hearsay Animal>**observer**>**interpreter**>audience	'A few people have told me they've seen a squirrel in the woods'	Evidence
3+ Fictional **Culture**>**observer**>**interpreter**>audience	'Althalus saw a squirrel in the woods'	Evidence
Figurative **Culture**>**interpreter**>audience	'She was as nervous as a squirrel'	Not reliable

The table above is intended to highlight the difference between fictional and figurative accounts, and where they fit into the ladder of evidence. The best evidence possible for the existence of something is that thing itself. The next best evidence is a (reliable) witness account or photograph. This is removed from the actual thing itself, but still relatively close. A courtroom will accept both these kinds of evidence. Beyond a direct witness account is hearsay evidence which can nevertheless still be strong. Most wildlife guidebooks would constitute hearsay evidence but we might trust them more than an actual sighting of an animal. Finally we have the two types of reference found in *Althalus*. When secondary worlds are based on authorial experience and are protected by verisimilitude of setting (i.e. they have an observer), like in *Althalus,* they are intended to be naturalistic, and can provide us with useful but culturally-informed ideas about a species.

However, when a thing does not have an observer at all, it does not seem to be protected by verisimilitude of setting to the same degree. It may exist, or it may be culturally inspired or invented.

This has implications for the study of fiction writings as historical documents. From an environment-setting perspective, species historians often comb species lists in non-fiction texts to provide clues to the history of fauna and flora. These usually explicitly exclude fictional texts as unreliable (Turvey, Crees, and Di Fonzo). However, this research suggests that fictional texts could provide some corroborating evidence if used with caution, to avoid conferring a primary world existence on species like the Shrub from Hell, or a late survival for the wolf in Nevada. Even beyond wildlife, this approach also has implications for other kinds of research. Two issues which could profitably be further researched in this way which have been raised over the course of this research are the relative importance of mutton and the spatial accessories, and cues of time-travelling fictional texts (e.g. bronze vs steel tools).

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Appendix

Term	Frequency	Type	Usage

Wolf	37	Wild animal	Mainly in past, also star sign, most references are to a single wolf-skin tunic (plot device)
Bear	11	Wild animal	Mainly in past, also star sign
Bison	11	Wild animal	Provides food and fur, only seen in past
Deer stag venison	11	Wild animal	Also figurative
Rabbit	5	Wild animal	Also figurative
Marmot	4	Wild animal	Only seen in past
Eagle	1	Wild animal	Only seen in past
Hare	1	Wild animal	
Squirrel	1	Wild animal	

Term	Frequency	Type	Usage
Shrub from hell; green berry	8	Plant	
Oak	5	Plant	
[conifer] needle	4	Plant	
Willow	3	Plant	
Evergreen	2	Plant	
Herbs	2	Plant	
Vines	2	Plant	
Aspen	1	Plant	
Birch	1	Plant	
Bramble	1	Plant	
Fir	1	Plant	
Pine	1		

Term	Frequency	Type	Usage
Horse pony mount mare	237	Domestic	
Grass	97	Domestic	Usually made into hay, also found wild

Cat **kitty** **kitten** **puss**	95	Domestic	
Cattle **cow** **bull** **ox** **leather** **beef**	62	domestic	Mostly used to refer to leather and vellum
Sheep **herd** **lamb**	56	domestic	Never seem to be eaten despite common domestic. Sometimes figurative.
Dog **puppy** **hound**	39	domestic	
Wheat	32	domestic	Also figurative: a 'gold wheat' is a coin
Pig **boar** **sow** **pork** **bacon** **ham**	28	domestic	Usually referring to meat, boar is star sign
Fish	22	domestic	Only a food – never seen in wild
Chicken **hen** **rooster**	9	domestic	
Donkey **ass**	5	domestic	
Goat	5	domestic	Also figurative, once a religious offering
Turnip	5	domestic	
Weeds	4	domestic	
Cherry	3	domestic	Also figurative
Flax	2	domestic	
Mouse	2	domestic	Food for a cat, also figurative
Oat	2	domestic	Also figurative
Rushes	2	domestic	Only seen as flooring
Turtle	2	domestic	Pet, also star sign
Barley	1	domestic	
Beans	1	domestic	

Bedbug	1	domestic	Commensal
Bee	1	domestic	
Cockroach	1	domestic	Commensal
Onion	1	domestic	

Term	Frequency	Type	Usage
Leech	6	figurative	Only ever used to describe a person who reads minds
Laurel	5	figurative	
Dragon	3	figurative	
Snake serpent	3	figurative	Sometimes a star sign
Ant	2	figurative	
Vulture	2	figurative	
Raven	1	figurative	
Apple	1	figurative	
Beaver	1	figurative	
Crow	1	figurative	
Duck	1	figurative	
Eel	1	figurative	
Fly	1	figurative	
Grapes	1	figurative	
Jellyfish	1	figurative	
Melon	1	figurative	
Quail	1	figurative	
Rat	1	figurative	
Sparrow	1	figurative	
Spider	1	figurative	Seen in a bad dream
Swallow	1	figurative	
Tiger	1	figurative	
Toad	1	figurative	Magic which turns person into toad
Worm	1	figurative	

