



Demographics of the Indigenous Species and RHD Contact

Introduction:

It is well noted that in all countries experiencing RHDV2, surges occur in the beginning of Spring, lasting into the middle of summer, with a smaller surge possible in the last term of Autumn, depending on temperatures.

Lagomorph Species of Southern Africa

Hares:

- 1) Cape Hare - Direct correlation to European Brown Hare.
 - 2) Scrub Hare
 - Subspecies Savannah Hare found in Eastern parts of South Africa, and
 - Subspecies Ribbuck Hare found in a small triangle between Garden Route, Cape Town and Matroos Berg
- (The subspecies have different shedding patterns, tail markings and ear bar codes)

Rabbits:

Critically Endangered Riverine Rabbit (Found in Karoo and upper parts of Southern Cape)
Red Rock Rabbits (Still shown as Red Rock Hares on most Internet research old data, but Rabbits)
Jameson's Red Rock Rabbit (Found in Gauteng, Mpumalanga, Parts of Limpopo, North West Province)
Hewitt's Red Rock Rabbit (Found in Southern Cape and parts of Western Cape and Karoo)
Natal Red Rock Rabbit (Natal, Lesotho, Swaziland, parts of Eastern Cape)
Smiths Red Rock Rabbit (said to be subspecies of Natal Red Rock Rabbit, with different markings and same distribution.)

Difference between Hares and Rabbits

There are many differences, but herewith the major ones:

Hares have a different body shape, with long thin front legs and huge thin curved blades for hind feet, while rabbits have much more stocky built bodies with short front legs.

Hares and rabbits have totally different chromosomes

Hares are born with hair, eyes open in just an hour, and fully mobile within a few hours.

Rabbits are born deaf, blind and naked, and will be contained in a nest till about 17 days of age. A new born hare looks like a 2 week old rabbit.

Rabbits burrow (the name *Oryctolagus Cuniculus* means burrower digger) while hares rest in little indents or between bushes/stones.

Important to note: The hare species cannot breed with each other or the rabbit species.

The Red Rock Rabbit species can interbreed, but share a total different geography and meeting up is not possible without human interference

The Red Rock Rabbits and Domestic OC Rabbit can in rare cases have a litter, but they cannot breed further - like mules. This however only happens if humans mistake an indigenous rabbit for a dumped domestic rabbit and place them together. There is a number of Domestic Kept Red Rock Rabbits known to me, by mistake, but has been imprinted to a degree that they cannot be released. They were not taken with intent, and many rescued by rescuers thinking they are dumped feral babies - See the Feral Factor Document.

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Affected Indigenous Species Known to Me:

Explanation of Involvement: We have actively and passively studied and collected data on indigenous lagomorph species for the past 6 years while situated on the farm near the Gourits River. What initially began as a private rescue operation for two indigenous colonies - one Hewitt's and one Riverine colony for relocation - has evolved into a comprehensive research project. We also observe hares and note regional differences. Farmers and birders actively protecting these species are part of our information system, and we have built up a vast network of data. Our sources will not be disclosed to protect these animals, given the unfortunate revelation that Riverine Rabbits have been caught and sold on the black market by individuals meant to protect them.

In Northern Cape, Karoo, Gauteng, and Garden Route, many indigenous hares and rabbits had succumbed to RHD by October 2023, and it is now spreading throughout the country and SADC. The Southern Cape experienced a surge due to freak hot weather in June 2023, affecting Knysna first, followed by colonies in Groot Brak and Friemersheim (my relocated, rehabilitated, contained feral colony, due to a visit to Knysna by the farmers).

Finding the Correlation Between Indigenous Species and Areas:

Between October and December 2022 in Northern Cape and Karoo Southerland area, more than 1/3 of deaths were from indigenous species, with Cape Hares, Scrub Hares, a small colony of Hewitt's Red Rock Rabbits*, and a small colony of Endangered Riverine Rabbits** most affected.

In the surge of September to December 2023, in Gauteng, Scrub hare (specifically subspecies Savannah Hare) and Jameson Red Rock Rabbits were noted. In Natal, Savannah Scrub Hare, Natal Red Rock Rabbit, and Smith Red Rock Rabbit were affected.

Very Important to Note: While the seasonal surge of 2022 accounted for about 1/3 of deaths, only 8%*** of other deaths were reported/noted to me. Most of these were in close proximity to huge areas of feral rabbits. Only 3% of indigenous species interact with human society, living on outskirts of towns or close to farm homesteads. Most indigenous species stay well hidden. In the case of our Endangered species, more colonies with stronger numbers have been seen during the past 3 years after our local protection program began.

Understanding Indigenous Species Movement: Hares:

Hares are solitary creatures with clearly marked territories of about 1.5 - 2 hectares each. Leverets will accompany their mom until about 12 weeks of age before searching for their own territory. Hares may be seen meeting at the edges of their territory, but these are isolated cases.

Hares have two breeding seasons, where male hares will invade and travel up to about a 30km radius, covering up to 10km in one night looking for females. The breeding season starts at the end of winter, predicted by the males, who begin traveling in August or earlier depending on the length of the winter.

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Cape Hare has a gestation period of about 42 days, while the Scrub Hare (with both subspecies of Savannah Scrub and Ribbuck Scrub) has a gestation period of about 38 days. Males pick up the virus and spread it through their courtship journey. The virus can only be picked up if there are feral rabbits in the area or if infected matter and flies reach the environment.

Understanding Indigenous Species Movement : Rabbits:

Let us first understand the movement of uncontained rabbits (both indigenous wild and domesticated feral).

Feral OC (*Oryctolagus Cuniculus*) Rabbits live in colonies, where one alpha male has between 6 to 8 females, and up to 3 males of Delta, Echo, and Gamma per group as support, with up to 5 alpha males forming their own cluster in a colony.

Colonies of indigenous rabbit species are much smaller, with only 2 alpha male clusters per colony. Young Beta and Charlie males leave the colony after hierarchical fights to become alphas of a new colony. While our indigenous rabbits have a breeding cycle of only 30-32 days, they only have between 2 and 4 litters, with 2-4 kits per litter per year, which can be used as a prediction of the weather to come. More sets of babies predict hardship, as they multiply to ensure the survival of the species.

Domesticated feral rabbits have a cycle of 28-32 days and have between 3 and 7 litters per year, with 4-10 kits per litter. Indigenous rabbits: Beta and Charlie males will start roaming in mid-August to find new colonies, although they do not venture far from the old colony in the first month, going back to the colony to rest until they have found their new tribe. A rabbit alone is a dead rabbit. They create their new spaces first and will return to their old colony and live on the outskirts until their space is ready.

Understanding the Difference in Evasive Tactics Between Rabbits and Hares - projecting the spread.

Hares are super agile and fast, capable of 3m jumps while employing an evasive zigzag pattern. They reach speeds of up to 60km/hr easily. They do not burrow but lie in hollows, hidden, with two ways out.

Rabbits are more stocky, and depends on the colony warning system to have them run for their holes and tunnels. Delta, Echo, and Gamma males take turns standing guard. Foxtrot males are the diggers, mostly creating new warrens and tunnels for the colony, together with the females. They are rarely seen, shy, and only forage a bit before going back and digging. (Note about Foxtrot males : They are good fighters and will attack snakes, moles, etc., invading the tunnels, with the help of the Echo males. If you have ever seen a male with grass in the mouth looking to build nest, he is a foxtrot) Warnings are given upon the spot of a predator that may include thumps (sound as well as ground vibrations picked up by feet and whiskers) as well as calls that is out of the human hearing spectrum.

This information has been derived from rescuing vast colonies, observing their growth, and identifying their behavior over a period of 7 years. We have used this structure to identify the same hierarchy in indigenous colonies. This is based on our work, and it is what we have seen and concluded. Most of the initial work has been done on the Dana Bay colonies, which have been rescued, males sterilized, and relocated. Females were introduced pregnant to the new space, and males born were caught and sterilized. Most of this valuable insight has been provided by the colony that was eradicated by RHD in just 2 days, in June 2022, after 5 years in an enclosed space of 1.2 hectares.

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Conclusion and Point of Matter:

- 1) Surges will happen, as in the rest of the world and already seen in South Africa, at the end of winter/start of spring, depending on the weather pattern for the year. This surge hits hard and spreads fast.
- 2) Hares may spread the virus in a larger area but with less intensity. Because of the vast jumps, little shedding of hair and crouching down they do not affect as much of the ground as a rabbit.
- 3) Rabbits will take the virus into their burrows radiating the colony, as well infecting a much bigger piece of ground per rabbit on the outside.
- 4) Humans having Indigenous species on their agricultural property will be the key to preserving indigenous species.
- 5) The biggest reason for spread to indigenous species is feral rabbits, who have larger areas of visiting. Feral rabbits need to be removed/eradicated to protect both our indigenous species and our other industries. Legislation needs to be set in place to stop feral colonies, as they are the biggest threat to spread. Please refer to the next document regarding the **Feral Factor**.