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When a Breed Disappears, What Do We Lose?

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Why India's indigenous livestock breeds are disappearing — and why saving them matters

In the dry forests and hills around Amrabad in Nagarkurnool district of Telangana, a small, hardy cattle population has been living for generations. Known as **Poda Thurpu**, these cattle are relatively small, compact and well adapted to the dry and rugged conditions of the region. Their ability to survive under harsh conditions and their usefulness as draught animals made them valuable to the farming communities that maintained them.

For a long time, however, Poda Thurpu remained an unrecognized local cattle population rather than an officially registered breed. That began to change when field surveys brought attention to the cattle and their distinct characteristics. Researchers and livestock organizations, in collaboration with the Telangana State Biodiversity Board and local cattle breeders, systematically documented the population and evaluated its physical and performance characteristics. The work eventually led to its recognition by ICAR's National Bureau of Animal Genetic Resources (NBAGR) as an indigenous cattle breed in February 2020. Poda Thurpu became the first officially registered cattle breed from Telangana.

The story of Poda Thurpu tells us something important about breed loss in India. It rarely looks dramatic. There is no sudden disappearance, no dramatic warning, no single event that tells us a breed is about to vanish. Instead, its numbers may slowly decline, its breeding population may shrink, and its unique characteristics may gradually disappear through changing farming practices, replacement by commercial breeds or indiscriminate crossbreeding. A breed can become rare so quietly that we may not realize what is being lost until it is almost too late.

The Extinction We Don't Notice

When a tiger population drops, it makes the news. When a livestock breed shrinks to a few hundred animals, it barely registers — not with the public, and often not even with the farmers

themselves, who are usually just trying to keep their families fed. Yet the loss of livestock diversity is a serious global concern. The Food and Agriculture Organization has repeatedly warned that the world's livestock genetic resources are under pressure, with many local breeds declining as farming systems change and animals are increasingly replaced by a smaller number of widely used breeds.

India, to its credit, has been paying closer attention to this problem. The ICAR-National Bureau of Animal Genetic Resources (NBAGR), Karnal, has been systematically documenting, characterizing and registering the country's indigenous livestock and poultry breeds. This work has brought many previously unrecognized animal populations into the formal record — animals that had existed for generations as somebody's cow, somebody's goat or somebody's sheep, but had never been formally recognized as a distinct breed. The story of Poda Thurpu is one such example.

The number of registered breeds has now reached 262, including 258 indigenous and four synthetic breeds, covering livestock and poultry species. But recognition is only the first step. Giving a breed a name does not automatically save it. Many indigenous breeds continue to face declining populations, even after they have been identified and officially registered.

So, what makes these indigenous breeds worth saving in the first place? What is it about them that makes them different from the animals that have replaced them?

What Makes an Indigenous Breed Different?

Indigenous breeds such as the Gir, Tharparkar, Kangayam, Ongole and Deccani sheep were shaped, generation after generation, by the environments in which they lived — heat, drought, poor-quality fodder, local diseases and parasites. A Tharparkar cow, for example, can cope with the hot and dry conditions of its native region, while Kangayam cattle have long been valued for their ability to work under demanding farming conditions.

Exotic and crossbred animals can deliver much higher milk or meat production when provided with adequate nutrition, healthcare and management. That production potential made them important to India's livestock development programmes. But an animal that performs exceptionally well under good conditions may not necessarily perform as well when feed, water or healthcare are limited.

Indigenous breeds carry genetic traits shaped by generations of adaptation and farmer selection. Their value, therefore, is not measured only by how much milk, meat or work they produce, but also by how well they can survive and perform under the conditions where they evolved.

What We Actually Lose?

The most obvious loss is genetic. Every breed that disappears takes with it a unique combination of genes that took centuries to accumulate and can never be recreated once gone. Some of those genes hold traits we don't yet fully understand or appreciate — resistance to a particular tick-borne disease, tolerance to extreme heat, the ability to reproduce on poor-quality fodder. In a warming world, some of the genetic resources needed for future climate resilience may be hidden in breeds we are allowing to decline.

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Then there is the livelihood and cultural loss, which is harder to put a number on but just as real. For many pastoral and tribal communities, a particular breed is more than livestock — it is part of their identity and way of life. Generations of livestock keepers have accumulated knowledge about grazing, breeding, selection and animal health that may exist nowhere in a textbook. When a breed disappears, much of that knowledge can disappear with it.

There are also more tangible, everyday losses: unique milk compositions used in traditional foods and even in some Ayurvedic preparations, distinctive wool types suited to specific weaving traditions, draught animals bred for exact terrain and soil conditions that tractors can't always replace economically for small and marginal farmers. These traits may be difficult or impossible to replace once a breed is gone. A breed may therefore represent far more than a population of animals; it can carry genes, livelihoods, knowledge and traits that future generations may need.

Why This Is Happening

The pressures are fairly straightforward, even if the solutions aren't. For decades, livestock development programmes placed strong emphasis on increasing milk production, and crossbreeding native cows with exotic breeds became an important strategy for raising productivity. Market forces reinforced this — a farmer selling milk gets paid for the quantity and quality of milk, not for an animal's resilience or genetic value. The economic incentive to choose a higher-yielding animal is therefore real and immediate.

The loss of village grazing lands, changes in land use and urban expansion have also made it harder to maintain breeds that depend on extensive grazing rather than intensive management. At the same time, indigenous breeds have often carried an unfair reputation as “inferior” or old-fashioned because their productivity is lower under intensive production systems.

The result is a difficult cycle: farmers move towards animals that offer better immediate returns, while the breeds that are better adapted to local conditions gradually lose their place in the farming system.

The Fightback: Genetic Conservation in Practice

The story of Kerala's Vechur cattle is probably India's best-known breed-conservation success story, and it shows both how vulnerable a breed can become and what determined conservation can achieve. Once common in parts of Kerala, Vechur cattle became increasingly rare as crossbreeding with exotic cattle expanded in the second half of the twentieth century. Their small size and relatively low milk yield made them less attractive under production systems focused mainly on higher milk output.

A veterinary professor, Dr Sosamma Iype, then at Kerala Agricultural University, began searching for surviving Vechur cattle with her students in the late 1980s. What followed was years of careful identification, breeding and conservation work, eventually supported by wider institutional efforts. The population recovered from a very small number of surviving animals to several thousand. Dr Iype was awarded the Padma Shri in 2022 for her contribution to the conservation of Vechur cattle. Her story is a reminder that breed conservation is rarely achieved through a single dramatic intervention; it is usually the result of years of patient work by scientists, farmers and institutions.

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India now has several structured conservation programmes as well. The Rashtriya Gokul Mission supports the development and conservation of indigenous bovine breeds through breeding and genetic improvement programmes. ICAR-NBAGR maintains breed records and genetic resource repositories, while also supporting the identification and characterization of previously undocumented livestock populations. The recognition of breeds such as Poda Thurpu shows why this work matters: a breed cannot be conserved if we do not first know that it exists.

But identifying and conserving a breed in a repository is only part of the solution. The bigger question is how to keep these breeds useful, economically viable and in the hands of farmers.

What Can Actually Be Done

Real change needs action from more than one direction. Policy support matters — better breeding infrastructure, targeted incentives, insurance and markets that make keeping a native breed financially viable rather than a sacrifice a farmer makes out of sentiment. Gene banks and cryopreserved germplasm provide an important safety net, but they cannot replace living populations in the farming systems where their traits continue to be expressed and selected. **In-situ conservation — keeping breeds alive within the farming communities and environments where they evolved — is therefore essential.

Consumers have a role too, even if it is a smaller one. Choosing dairy, wool or meat products linked to native breeds, supporting organizations and breed societies working with livestock keepers, and simply knowing that these breeds exist can all help create demand for their continued use. Awareness alone cannot save a breed, but without awareness, conservation rarely gets the public support it needs.

Ultimately, the goal should not be to preserve indigenous breeds as museum pieces. **It is to keep them alive, useful and economically valuable enough that farmers have a reason to continue breeding them.

Closing

Back in Amrabad, the Poda Thurpu is still a relatively small population, but it now has something it did not have before: a name, an official record and scientific recognition of its distinct identity. That recognition does not guarantee its survival. But it gives conservation efforts a starting point — and offers a chance to ensure that this cattle population remains part of the landscape for generations to come.

A breed isn't just an animal shape with a label attached. It is the result of generations of selection and adaptation, carrying genetic solutions to the particular environment in which it evolved. Once those genes and traits are lost, that particular combination cannot simply be recreated.

Biodiversity conversations often focus on wildlife, forests and charismatic species with dramatic stories of decline. But the same quiet erosion can happen to the animals that farmers and livestock keepers have depended on for generations. When a breed disappears, we lose more than an animal. We lose genetic diversity, accumulated knowledge and a living piece of our agricultural heritage — and perhaps possibilities that future generations may need.

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That is why saving a breed is not about preserving the past. It is about keeping options open for the future.

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