

Reciprocity

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Reciprocity is a way of maintaining balance in relationships and a principle for respecting relationships that are context-specific and ongoing.

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Reciprocity in bison dung pats

Plains Bison (*bison bison bison*) are a symbolic species of the North American West. Until the mid-1800s, more than 30 million bison roamed the grasslands of the places we now call Canada and the United States. Increased colonization of the West led to the large-scale slaughter of bison. Increasing numbers of white settler hunters and a growing market demand for hides and bones intensified the killing. Most herds were exterminated between 1850 and the late 1870s. By 1900, there were less than 1000 wild bison on the continent.

Bison made the prairies hospitable for many other communities, ranging from plains Indigenous nations to birds to beetles. As the largest land mammal on the continent, bison are not just massive in size, they are also a keystone species in the west, meaning they have a dramatic influence on an ecosystem. If one of these species disappears, no other species can fill its ecological role, and the whole ecosystem changes as a result. The daily activities of a bison's life unfold in relation to the worlds of beetles, toads, and birds, as well as supporting those of wolves and humans. Reciprocal [relationships](#)—one that are complex and mutually beneficial—maintain balance in an ecosystem.

Drawn from the work of Indigenous scholars—such as Michi Saagiig Nishnaabeg writer and theorist Leanne Betasamosake Simpson—and Indigenous research methodologies, the concept of reciprocity focuses on [how lives are related to one another](#). Reciprocity is how the lives of different beings (including plants, animals, and humans) make one another possible. Reciprocal relationships are unique to place and time. Reciprocity helps us understand the specific relationships that support bison life in the plains region, as well as the lives of other beings that bison make possible.

Bison eat a lot. As generalist browsers who primarily eat grasses and forbs (flowering plants), bison spend more than nine hours per day grazing. Every day, an adult male will eat 10kg to 14kg of vegetation to sustain a 900kg body, while 500kg adult females need 7kg to 10kg of greens. Moving up to 25km a day through open fields and wooded areas, along lakes and rivers, and sometimes into the mountains, bison move spores and pollen with them and help a wide variety of plants flourish (National Parks Service, 2016a). In this way, bison increase biodiversity. But a primary contribution to the lives of plants and other animals is the 11 to 13 litres of dung that bison excrete every day. Each excre-

tion—often referred to as a dung pat—becomes a world of relations, supporting the lives of at least 300 species of insects and worms (National Parks Service, 2016b).

One relation whose livelihood is made possible by bison is *Onthophagus knausi*, a very small dung beetle, growing to just 5mm, which flourishes among bison (Barber et al., 2019, p. 425). The small black beetles are the first beings to arrive on a fresh dung pat, attracted to it by a keen sense of smell. An entire community of microbes are at work in bison stomachs, helping them convert plant cellulose to accessible carbohydrate energy (Lott, 2002, p. 48). Some of these microbes and bacteria, along with enzymes and minerals, are excreted along with indigestible plant matter, including seeds. All of this material makes dung pats a rich source of nutrients for insects, worms, birds, amphibians, and other small animals, as well as for the soil itself. However, these nutrients, enzymes, and seeds only become available to other beings through the work of *knausi* and other dung beetles. Unlike cattle dung, bison dung remains soft and is an anaerobic (oxygen-free) environment. *Knausi* tunnels into the dung and creates pathways, opening the pat to light and oxygen, and creating a hospitable environment for other insects. Dung beetles also bring the nitrogen-rich dung into contact with soil-dwelling microbes, which in turn transform the nitrogen into ammonia that can be absorbed by plants (National Parks Service, 2016b). By breaking down the dung, the beetles' work prevents it from becoming a host for parasites. In making nutrients accessible to other insects and the prairie soil, the beetles also keep bison and other animals safe from contracting parasites and disease.

Other insects, including other beetles and flies, as well as an abundance of earthworms, come to dwell in the dung pat in the few days before it is fully broken down or dried out. The

flourishing of invertebrate life attracts insectivores, including frogs, turtles, bats, and birds—each of whom further disperse the nutrients and seeds in the dung, while supporting other animal communities. The flourishing of microbial and invertebrate life in bison dung pats was often a lifeline for migrating birds or for black-tailed prairie dogs, who find their first meals in bison dung before other food becomes available on snowy spring landscapes (Olson, 2016). After being a source of sustenance for so many, dried dung pats were collected and used to fuel fires by members of the Flathead, Blackfoot, and other plains Indigenous nations.

All of this life, reproduction, feeding, and sharing occurs on a single dung pat. As bison herds moved throughout the prairies in great numbers, such convergences of interconnected, complex, and mutually beneficial relations of reciprocity are repeated daily, across massive swaths of land. Some of these relations persist in the absence of herds, but bison grazing habits, migration patterns, and dung characteristics are unique and not readily replaced. While some dung beetles have adapted to cattle or deer dung, the little *Onthophagus knausi* disappears in the absence of bison.

Bison, beetles, and the other species inhabiting or using the dung pat live in relationships of reciprocity. That is, they are non-dominating and ongoing. Neither the bison or the beetle are in charge or in a position of power. Their lives are compromised without one another. Reciprocity is a way of understanding relationships by recognizing and respecting mutual dependence, as well as taking responsibility for maintaining balance in those relationships.

The lens of reciprocity at work in this account of bison and their relations is drawn from Indigenous research methodologies.

Indigenous theorists identify reciprocity as a core principle and value, alongside respect, responsibility, relevance, and relationships. There are other ways of examining relationships, such as a market-based analysis that focuses on exchange, which turn individuals (humans and non-humans) into [objects of consumption](#). The lens of reciprocity helps us see how relationships mutually sustain life. Reciprocity also considers humans as part of these relationships, whereas some ecosystem approaches see humans as separate from the functioning of their environments.

The videos included in the [Buffalo Digital Stories](#) show how bison have deeply affected the lives of Plains Indigenous Nations—both in the past and in the present. Reciprocal relationships of respect and responsibility continue today, as bison continue to provide sources of physical and cultural sustenance to Blackfoot, Cree, Flathead, Métis, and other Plains Nations. Similarly, these Nations are leaders in conserving bison and helping all relations flourish in the region.

Reciprocity extends beyond just human life and exists beyond the human motives of resource extraction and commercial exchange. Leanne Betasamosake Simpson argues that the “alternative to [extractivism](#) is deep reciprocity” (2017, p. 75). As Rochelle Johnston, Deborah McGregor, and Jean-Paul Restoule explain, reciprocity includes “literally all relations” (2018, p. 13). Reciprocity identifies relationships of mutual dependence that are place-based, emphasize respect and responsibility to all relations (human and non-human), and promote life in all its forms.

Discussion Questions

- How are bison and beetles living in a reciprocal relationship?
- How does the disruption of one life or relationship (such as the presence of bison) have an impact on other forms of reciprocity?
- Which relationships are necessary for maintaining balance in your life? Which human and non-human relations shape how you live? Which human and non-human relations does your life have an impact on? How can you practice respect and take responsibility in these relationships?

Additional Resources

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