

## 2. What Do Property Rights Do?

It is precisely those things which belong to “the people” which have historically been despoiled—wild creatures, the air, and waterways being notable examples. This goes to the heart of why property rights are socially important in the first place. Property rights mean self-interested monitors. No owned creatures are in danger of extinction. No owned forests are in danger of being leveled. No one kills the goose that lays the golden egg when it is his goose.

Thomas Sowell, *Knowledge and Decisions*

MOST DISPUTES AMONG young children result from disagreements over ownership of important assets such as toys. When the use of a toy is questioned, it is because ownership claims, even if temporary, are unclear. In some cases, quarreling may even turn into violence. To resolve the conflict and avoid fighting, a child instinctively seeks to define rights by claiming the toy as “mine.”

The cause of disputes among children is the same one that has caused conflicts between individuals, tribes, and nations throughout history—namely, scarcity. If we did not face scarcity, there would be no reason for disagreements over possessions such as toys because everyone would have as much as he or she wanted.

As Thomas Sowell (2001, 2) explains, however, “there has never been enough to satisfy everyone com-

pletely. This is the real constraint. That is what scarcity means.” Scarcity dictates that there are competing uses for valuable assets, whether those assets are natural or man-made.

How competition for use of a scarce resource is resolved depends on whether property rights are well defined, well enforced, and readily transferable. In the absence of these three dimensions, conflict results because people do not know who has the right to the property in question, what the boundaries of the rights are, and whether they can trade with one another to resolve their competing demands. If property rights are not well defined and enforced, their value is up for grabs and people fight for use of the property rather than find ways of cooperating.

Without property rights, people race to capture valuable assets or expend precious time and effort fighting over ownership. Racing is well illustrated by open access to fisheries, when fishers must be first to catch the fish lest it is caught by others. Leaving a fish to grow larger or to reproduce is the equivalent of leaving money on the table for others to take. If one fisher does not take a fish, another will, with fish stocks possibly reduced to the point where populations are unsustainable. This explains why the Food and Agricultural Organization of the United Nations finds that 25 percent of the commercial fish stocks in the world are overfished. Similarly, in a 2007 report to the U.S. Congress, the National Marine Fisheries Service categorized 45 out of 184 fish stocks in United States water as overfished.

The rush to claim Internet addresses illustrates an-

other case of racing. Domain name space was initially seen as a public resource, leading to confusion over ownership. Companies discovered quickly that they had to race to secure their Internet identities, often only to discover that those names had already been claimed. Squabbling broke out and cybersquatters and cyberpirates became prevalent. Fighting over resources diverts resources away from consumption and investments in new assets and toward efforts to take or defend. The worst example of fighting over property rights is war wherein “to the victor go the spoils” (see Haddock 2003).

History has shown that cooperation will replace racing and conflict if property rights are well defined, enforced, and transferable. Definition of the property and the rights of its owner clarifies who can enjoy and benefit from the property and determines who is in control. Enforcement means that those who do not own the property (or lack permission from its owner) are unable to use the property or capture benefits from it. Well-defined and enforced property rights also guarantee that the owner reaps the rewards from good stewardship and bears the costs of poor stewardship. Finally, transferability means the owner will take into account the values of other potential users. If another user values a resource more highly than the current owner and offers to purchase it, the two have an incentive to cooperate in order to realize the gains available from trade.

## THE TRAGEDY OF THE COMMONS

The phenomenon of racing and fighting to capture valuable resources in the absence of well-defined and enforced property rights is termed *the tragedy of the commons* (Hardin 1968). The phrase derives from the incentive to overgraze pastures that are open to all grazers. Each potential grazer has an incentive to fatten his livestock on the grass before someone else gets it. Open access to resources lacks two critical components that property rights systems share—exclusion and governance. Without these two components, people have little incentive to economize on the use of resources. Rather, the incentive is to overuse the asset before someone else does (see Eggertsson 2003).

The first inhabitants of this continent faced the tragedy of the commons in many instances. Indeed, anthropologist Paul Martin (1984) believes that the extinction of the mammoth, the mastodon, the ground sloth, and the saber-toothed cat was, directly or indirectly, related to “prehistoric overkill,” which was a manifestation of this tragedy. With no one owning the prehistoric animals, hunters had no incentive to conserve them. Evidence suggests that Plains Indians overharvested big game such as elk and deer when there was competition among tribes, possibly explaining the dearth of wildlife found by the Lewis and Clark expedition when it crossed the Continental Divide.

Indians might have similarly decimated bison populations on the plains if they had had the technology (namely, rifles) to do so and had the demand for the

hides, leather, and meat. What they lacked, however, the Europeans did not. Two hundred years ago, 30 million to 70 million bison roamed the western plains, but by 1895 only some 800 remained—most in captivity on private ranches. With hunting open to all, commercial hide hunters, settlers, and thrill seekers shot millions of bison. The massacre continued until bison were nearly driven to extinction. Complete extinction was averted because entrepreneurs saw value in taking the necessary effort to capture some animals and protect them as private property.

Finally, consider pumping from an oil pool or a groundwater basin (see Libecap 2003). Similar to several children drinking with straws from the same soda, each pumper has an incentive to pump fast, leaving less oil or water for other pumpers. The children might suffer a headache if they drink too fast, and oil pumpers suffer the cost of not getting as much oil from the pool as they could if they pumped more slowly over a longer time period. Groundwater pumpers suffer the cost of having to sink their wells deeper, of having salt water intrude, and of having land subside when wells are depleted.

#### ESCAPING TRAGEDY

Interestingly, the number of actual cases of the tragedy of the commons prevailing to the point of complete extinction or exhaustion of a resource is small. Some examples of animals reaching extinction include the passenger pigeon and the dodo bird. What is it that stops the tragedy from going to the limit?

The number is small because people recognize the tragedy before it is too late and devise exclusion and governance rules that can prevent racing and fighting. As long as the supply is large in comparison to demand, as it was in the early days of bison hunting, there is no reason to expend effort trying to define and enforce property rights. But as resources become more scarce, individuals have an incentive to restrict access and prevent complete exhaustion of the resource, as was the case with the bison. In the next chapter, we take up the question of what determines when and how people go about excluding others from the commons to prevent tragedy. Here, we simply describe three main institutions that are used to restrict access to resources and hence discourage the tragedy of the commons.

### *Community Commons*

One way to escape the tragedy of the commons is for the people who are competing for a valuable resource to join together as a community for the purpose of excluding others and establishing governance rules. The users solve the open access problem by limiting access only to community members. Common property regimes are halfway houses between a completely open access commons and full private rights. They can be a practical solution when an asset is valuable enough to justify the costs of organizing the group, but not valuable enough to justify the effort necessary to precisely divide the asset into private, transferable rights (see De Alessi 2003).

On the western frontier, cattlemen's associations established communal rights. Because it was costly to define land boundaries in the absence of surveys and to confine cattle prior to the invention of barbed wire, ranchers organized into associations that limited access to the grazing commons. Their associations declared when a range was fully stocked and closed the range to new entrants. Though they had no formal, legal claim to the land, the community of cattlemen enforced their claims by excluding newcomers from roundups and by threatening violence if necessary. As we shall see in chapter 3, the invention of barbed wire changed the cost of establishing private, transferable grazing rights.

The Swiss city of Torbel provides another example of communal land ownership that is centuries old. Torbel is a village of approximately 600 people. It has five types of communally owned property: alpine grazing meadows, forests, waste lands, irrigation systems, and paths and roads connecting privately and communally owned properties. The village rules are voted on by all citizens, determining who has access to the commons and what can be done with the land, the water, and the timber. Once communal rights are established, they are strictly defined and enforced. For example, the "wintering rule" states that no citizen can send more cows to the alpine meadows than he can feed during the winter. An official levies a fine on those who exceed quotas and is allowed to keep one half of the fines for himself. The success of Torbel's system has largely been due to the small number of individuals involved and their long-standing traditions (Ostrom 1990).

For several reasons, however, communal systems do not completely eliminate the tragedy of the commons. Depending on the size and cohesiveness of the community, conflicts over who has what rights may remain. How many cows can each rancher graze, how much timber can each Swiss villager cut, and how many fish can each fisher catch? Furthermore, suppose a community member grazes too many cows, cuts too much wood, or catches too many fish. What are the enforcement sanctions against the community members? As long as the community is small and homogeneous, defining and enforcing communal rights is relatively easy, but as group size and heterogeneity increase, it is harder to monitor what each member is doing, thus making it easier to get away with taking more from the commons.

Communal forms of ownership also make it more difficult to take advantage of gains from trade. Any individual member of the community may find it advantageous to sell his or her share of the communal resource, but this potentially erodes group homogeneity. That is why communal shares are not usually transferable, and if they are, why transferability often requires group approval.

Mutual irrigation ditches provide an example of these problems. The amount of water to which each irrigator is entitled may be clear, but because monitoring use is costly, irrigators may take more than their allotted share. Communal management is further complicated by the fact that users share in the operation and maintenance of the ditch. If any one member shirks responsibilities, the other members will bear additional



operation and maintenance costs. Community norms and customs can reduce the propensity of members to take too much water or evade their operation and maintenance responsibilities, but this requires maintaining group homogeneity. As a result, shares in mutual ditch companies are not simply transferable, especially if the potential transferee is a newcomer who may not share the community values.

### *Private Property*

Communal forms of ownership often evolve into private property rights. The move from communal rights that exclude outsiders and specify communal rules to private property rights requires more precision in the definition and enforcement of rights and allows the individual owner to decide whether or not to transfer ownership. Definition makes it clear which individuals have what rights; enforcement guarantees exclusion of all other potential users; and transferability forces the owner to consider the value of alternative uses. Hence, private property rights give owners the incentive to maintain their assets and to seek higher-valued uses for them.

Governor William Bradford's decision to move from communal to private ownership at Plymouth Colony illustrates the transition from common to private ownership and the positive results. When the farmland at Plymouth was organized jointly, there was shirking on work and overconsumption. Despite the group's shared common religious values, communal property rules could not prevent the tragedy of the commons. Bradford

reported an unwillingness to work, confusion, and a prevailing sense of slavery and injustice. In short, the communal experiment was endangering the health of the colony. By dividing the land into individually owned parcels, Bradford provided the colonists with a stronger incentive to work—the fruits of each new landowner’s labor would benefit him and his family directly. Property in Plymouth was further privatized in ensuing years when houses and later the cattle were assigned to separate families. According to Bradford, the colony flourished under private ownership, bringing “very good success” (quoted in Bethell 1999).

The continuum from communal to private ownership is also demonstrated with Maine’s lobster fishery. Lobster fishers have formed community groups known as harbor gangs. These gangs exclude outsiders from the lobster fishery, thus creating an incentive to limit the race to fish. They also monitor who enters the fishery, divide up the fishing territories, and police the territories to ensure that fishers are not encroaching on one another’s territories. The success of this system is manifested in higher catches, larger lobsters, and greater incomes for these lobster fishers (see Acheson 1988).

The patent process serves as an example of the importance of clarifying intellectual property. One of the primary functions of a patent is to convert a commons in idea space into private property, where each inventor defines his or her particular claim (Friedman 2000, 133). Creating rights to ideas gives people an incentive to invent because they have an avenue to exploit their discovery and can ensure that someone else does not

enjoy the benefits of the invention without paying for it.

The cost of enforcing property rights defined by patents is constantly changing with new technologies. For example, encryption—a mathematical procedure for scrambling and unscrambling information—makes patented and copyrighted ideas more secure. IBM has developed a digital lockbox called a cryptolope™ that allows access to its information only to those who have paid for it. Because this technology excludes nonpayers, it has been termed the digital equivalent of barbed wire (Friedman 2000, 144). Publishers are finding this to be an invaluable tool in the modern era.

The importance of transferability of property rights must also be emphasized. The ability of the owner to sell his or her assets provides the incentive for efficiency. Consider what allowing transferability of water rights has done to improve water-use efficiency in the American West. Under the *prior appropriation* doctrine, water rights are affirmed by states' giving water users a right to a specified quantity of water. In dry years when not all rights can be met, those with the most senior date of appropriation are allowed to take their water first, followed by the next most senior, and so on (Anderson and Snyder 1997). In states such as Montana, where courts have adjudicated water claims dating back to the nineteenth century, water rights are now well defined and enforced.

When water rights are well defined farmers can sell their water to environmentalists and urban users at a profit, and thereby have an incentive to reduce water

use by employing superior irrigation technologies or by changing cropping patterns. Urban users save money—water obtained from alternative sources, such as from desalination or damming, costs more. Environmental interests save fish and wildlife by purchasing or leasing the rights to keep water in streams and rivers. Between 1998 and 2007, more than 1,000 water market transactions were implemented to increase stream flows in the western United States. With fewer than 90 transactions, California and Idaho alone have restored more than 3.4 million acre-feet to streams and rivers (Scarborough and Lund 2007).

Private ownership with transferability can also lead to gains from trade between strange bedfellows. The Rainey Wildlife Sanctuary is 27,000 acres of marsh in Louisiana owned by the Audubon Society and managed for the benefit of the species it protects. Not only does the society own the land, it owns the mineral rights—most importantly the oil and gas rights (Snyder and Shaw 1995). What distinguished Rainey from federal sanctuaries is the coexistence of wildlife and oil-drilling operations. There were tradeoffs for the Audubon Society between preserving the pristine sanctuary and earning royalties from the energy resources, but the society minimized the impact on the sanctuary by requiring special drilling techniques and equipment. As John Mitchell put it in an article in *Audubon* magazine (1981), the sanctuary's manager, David Reed, "liked the idea of cooperating with industry in a situation where it was likely there would be no adverse impact on the biotic community." For nearly fifty years Audubon worked with oil

companies to earn more than \$25 million, which it used to buy and preserve additional land for wildlife habitat (Lee 2005).

### *Government Regulations*

Perhaps the most frequent response to the tragedy of the commons today, though not necessarily the most effective or the most common historically, is governmental regulation (see De Alessi 2003 and Yandle 2003). Government regulation can save resources from extinction and reduce conflict by restricting people from access to the commons and by enforcing the restrictions.

Consider government regulation of oyster beds in Maryland (De Alessi 1975, 2000). The state government regulates the season, the size of the oysters that can be collected, the daily catch, and the harvesting techniques that are allowed. It enforces regulations by patrolling with boats and helicopters and by placing inspectors at landing stations. The state also helps sustain the resource by fertilizing the oyster beds with oyster shells during the off-season.

Similarly, states regulate hunting to prevent other species from suffering the fate of passenger pigeons. As with oyster harvesting, states regulate seasons, set bag limits, and prescribe hunting methods. In some cases, they augment habitat by limiting uses that compete with wildlife and by planting animals and fish in the habitat. State regulation may be necessary because it is costly to establish private property rights to wild animals that roam over large areas (see Lueck 2003).

Government regulation to prevent the tragedy of the commons, however, is no panacea for several reasons. First, enforcement of restrictions on access is costly. Regulatory agencies must expend resources monitoring access to the commons and punishing those who violate access rules. In the case of open ocean fisheries, such enforcement costs may be so high that implementation is almost impossible.

Second, as a substitute for high public enforcement costs, regulatory agencies often raise the private cost of taking the resource in an effort to discourage exploitation. In the case of oyster harvesting, for example, Maryland mandated that oyster dredges be pulled by sailboats instead of power boats on certain days of the week. In salmon fisheries, regulatory agencies have limited the size of boats and the types of nets that can be used. These restrictions do increase the costs, but typically do not work as well as one might hope. When smaller boats are mandated, fishers invest in expensive electronic gear for locating fish, thus increasing the productivity of the smaller boats. Agnello and Donnelley (1975a, 1975b) studied oyster beds in sixteen states from 1945 to 1970, finding that average labor productivity was lower on government-regulated oyster beds than on privately owned beds. They also found that the privately controlled oyster beds were healthier and produced better quality oysters. Their data show that a shift to private ownership of oyster beds away from public ownership under government regulation increased the average income of oystermen by approximately 50 percent.

Third, even if regulating access to the commons

successfully raises the value of the resource, the government will be faced with the problem of who gets access to it. Government regulations can improve wild game populations, which predictably will attract more hunters. Who should be allowed to hunt the more abundant populations? Limits on open grazing of public lands can improve forage, but who then should have access to the improved forage?

To answer these questions, government will have to allocate access to the valuable rights, and depending on the allocation procedure, people will compete for those rights. Because access to resources is valuable, individuals, associations, and firms will invest in trying to bias the distribution system in their favor by using political pressure, campaign contributions, perhaps even bribes. Hence, regulatory agencies can be “captured” by special interest groups. A large body of empirical evidence indicates that government officials often implement policies designed to improve their own welfare by maximizing their power and wealth (see McChesney 1997; Anderson 2000).

Consider government regulation of federal lands that would be subject to the tragedy of the commons if access were not limited. Historically, access has been allocated to miners, loggers, and grazers. More recently, however, the security of this access has been called into question by others who would like to capture the value of environmental amenities from the federal lands. As a result, battles have erupted between competing users of the politically allocated commons, creating a gridlock for land managers (Nelson 1997).

In the case of grazing, for example, environmentalists and ranchers have locked horns. Cattle ranchers have long held grazing permits that give them access to federal lands and allow them to capture some of the value of what would be the commons. Environmentalists argue that the ranchers are getting the permits for fees below what they are worth and that the federal lands should be used to produce amenity values. Non use advocates want access for ranchers restricted even further so that they can capture amenity values.

The Arctic National Wildlife Refuge (ANWR)—one of the largest areas in America's wildlife refuge system—provides another example of the problems of political allocation. The refuge is a region rich in fauna, flora, and oil potential, where development has been debated for nearly fifty years. Development proponents argue that ANWR oil would help supply America's energy demands and could be done without meaningful harm to the environment. Opponents counter that the ANWR's flora and fauna are far more valuable than its oil and therefore should not be disturbed. The conflict between oil potential and pristine nature is about who will capture the value of the refuge. Will it go to developers for energy or to environmentalists for wilderness? Special interest groups have focused on narrow issues, ignoring other costs and forgone opportunities to use or appreciate the land.

In summary, the regulatory approach to resolving the tragedy of the commons simply moves the racing and fighting into the political arena, thus giving government and lawmakers the power to allocate access rights



to valuable resources. When property rights are up for grabs in the political arena, potential users of the resource will do what it takes to get the attention of politicians and bureaucrats making allocation decisions (see McChesney 2003). Commenting on the problems of government regulation, Nobel laureate Joseph Stiglitz (1993, 599) said, “government is not some well-intentioned computer that only makes impersonal decisions about what is right for society as a whole. Instead government is a group of people—some elected, some appointed, some hired—who are intertwined in a complex structure of decision making.” When governmental solutions are proposed, “it is always appropriate to inquire into not only the extent of the problem, but also whether government can effectively address it.”

#### PROPERTY RIGHTS AND ECONOMIC GROWTH

When property rights are established and the tragedy of the commons is avoided, cooperation and economic growth prevail. Prosperity follows from freedom because a free society based on secure property rights allows owners to seek and capture the gains from trade inherent in voluntary exchanges. If individuals and businesses do not have secure rights to property and lack the confidence that contracts will be enforced and the fruits of their efforts protected, their drive to engage in productive activity will diminish. In other words, the efficiency of markets follows from secure and tradeable property rights, which are the basis of any truly free society.

Hence, property rights are necessary conditions for both freedom and prosperity.

The connection between private property rights, freedom, and economic prosperity has become even clearer since the fall of communism in the Soviet Union and Eastern Europe. Following World War I, many people believed that centrally planned economies could improve on market systems to promote human welfare. The great experiment with communism in the Soviet Union, however, proved that state command-and-control was not a viable alternative to voluntary exchanges between businesses and individuals who own property. The belief that planners could create a better outcome than that produced by individuals directing their privately owned assets was, in the words of Tom Bethell, “the key economic delusion of socialism” (1998, 11). And Nobel laureate Friedrich Hayek, in his debates with economic planners following World War II, argued that socialism and communism would put civilization on “the road to serfdom.”

Several studies have developed indexes of economic freedom. These indexes differ in some of the variables they include, but they generally measure constitutional enforcement, freedom for contracting, protection of property rights, likelihood of revolutions, and extent of democracy. These indexes compare the level of freedom across countries and over time and estimate the empirical relationship between freedom and economic prosperity.

The general conclusion from these studies is unequivocal, namely, economic growth is positively related

to the security of property rights. In the twelve *Economic Freedom of the World* Annual Reports produced by the Fraser Institute and the Cato Institute, a team of researchers, led by economists James Gwartney and Robert Lawson, found that nations that scored in the top fifth of the economic freedom rankings had secure property rights and that nations that scored in the bottom quintile lacked secure property rights.

Economist Seth Norton (1998) correlated the extent to which countries have secure property rights with measures of environmental quality and human well-being. In nations where property rights are well protected, Norton found that roughly 93 percent of the population has access to safe drinking water compared with only 60 percent of the population in countries where property rights are weak. He also found that 93 percent of the population of countries with well-protected rights has access to sewage treatment while in countries without well-protected rights only 48 percent has access to sewage treatment. Norton found similar results when examining life expectancy. Life expectancy is seventy years in countries with strong property rights but only fifty years in countries where property rights are weakly protected. He concludes that “property rights and its related construct, the rule of law, and a more general category, freedom from property rights attenuation, are all positively related to economic growth. Their absence leads to economic stagnation and decline” (44).

Despite the statistical evidence showing the positive relationship between property rights, freedom, and economic prosperity, there has been an erosion of property

rights in some regions. In 2000, the United States was the second-freest economy listed in *Economic Freedom of the World*. In the 2008 report the United States fell to eighth place, behind Hong Kong (ranked first place), Singapore, New Zealand, Switzerland, the United Kingdom, Chile, and Canada. The Heritage Foundation/*Wall Street Journal's* 2008 *Index of Economic Freedom* reports that the Americas in general have seen a decline in the security of property rights and economic freedom. Venezuela in particular has seen a steady decline as President Hugo Chavez takes the country deeper down an anti free market path. "What these nations fail to realize," according to Heritage Foundation president Edwin Feulner, "is that undermining the foundation of one's own prosperity risks bringing about the end of that prosperity, whether through stagnation or economic collapse" (2001, xiv).

#### CONCLUSION

The tragedy of the commons can only be eliminated by creating rules for exclusion from the resource in question and by establishing a system to enforce the rules. Often we turn to government regulation as the solution to the tragedy, but government solutions are costly and frequently create new problems. Community ownership is a little-studied way of restricting access to the commons that can work well in small, homogeneous groups. Establishing strong property rights is an alternative for exiting from the tragedy of the commons and provides the potential for substituting cooperation for the conflict

inherent in political decisions. If property rights can be defined, enforced, and traded, owners have the incentive to work together and to seek more efficient uses of the resources they own. When clearly specified property rights exist in the context of the rule of law, resources are better cared for, economic prosperity is more likely, and freedom prevails. As Hayek (1973, 107) explains, “The understanding that good fences make good neighbors, that is, that men can use their own knowledge in the pursuit of their own ends without colliding with each other only if clear boundaries can be drawn between their respective domains of free action, is the basis on which all known civilization has grown. . . . Property . . . is the only solution men have yet discovered to the problem of reconciling individual freedom with the absence of conflict.”

Of course, the key problem facing any society is how to obtain and maintain such a system of property rights. It is relatively simple to do so for land that can be surveyed and fenced, but it is much more difficult to do so for mobile resources, such as wildlife and air. As we shall see in the next chapter, however, property rights can and will develop given a legal setting that encourages their evolution.