

KEYNOTE INTERVIEW

Natural capital: The future of land investments



*Enhancing natural capital is a key step to developing resilient farmland and forest assets, say **Cristina Hastings Newsome** and **Skye Macpherson** of Nuveen Natural Capital*

Since the dawn of farming 10,000 years ago, those who work the soil have understood that everything they do depends on the mercy of nature.

Consumers, investors and regulators are also paying increased attention to agriculture's environmental performance, it has never been clearer that responsible stewardship of the land is essential to long-term productivity. In January 2022, Nuveen combined its farmland and timberland asset management businesses into one division, under the name of Nuveen Natural Capital. This new business accounts for around \$9.4 billion of AUM. Cristina Hastings Newsome, the firm's head

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of sustainability, and Skye Macpherson, head of portfolio management, explain the benefits of enhancing natural capital.

Q What is natural capital - and why does it matter?

Cristina Hastings Newsome: Natural capital is everything that we derive from the natural environment. It includes soils, forests, air, rivers and oceans, as well as the biodiversity of plants and animals. These resources

are essential for our survival, and they provide the foundation of our economic system.

Natural capital makes human life possible. It provides our basic human needs: our fresh water, our fertile land to grow crops, the pollination to enable those crops to grow. Up to 80 percent of all new medicines are derived from nature.

Natural capital serves us in ways that are invisible, silent and taken for granted. It provides services that regulate the climate and aspects of the environment. It allows recreation, for example through hunting or mountain-biking in our forest properties. It

provides supporting services through the nutrient and water cycle. And of course, nature provides the conditions that allow us to grow food. By some estimates, these services could be valued at \$140 trillion.

Our global economic model freerides off nature in some shape or form. We can easily measure the financial value of the crops we grow, but the ecosystem services, which have allowed those crops to be produced, have not historically been valued. In fact, all the other types of capital – financial capital, produced capital, human capital – have an intrinsic dependency on a rich and resilient base of natural capital.

Q How close are we to a common understanding of how natural capital can be measured?

Skye Macpherson: Trying to measure natural capital is a very new science. The first natural capital accounting standard, the System of Environmental-Economic Accounting, was only adopted by the UN in March last year. Then the British Standards Institute released a natural capital accounting standard a few months later. That accounting standard should help organizations understand how their operations impact – and depend on – natural capital assets. And it provides a way to standardize how people measure the asset and the outputs, so there can be a transparent and repeatable practice.

Financial reporting has been around for centuries and refined over time, and we fully expect the same to happen with natural capital accounting. The most important step is to recognize the importance of natural capital, so that we can start to measure it in a meaningful way.

There's a lot of talk about the TCFD – the Taskforce on Climate-Related Financial Disclosures. But there is also a Taskforce on Nature-Related Financial Disclosures, the TNFD. We

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think that is going to be as important as the TCFD in the future. This type of framework is a really important step in measuring the assets that we have today, and to improve and enhance those over time.

Q And given that natural capital is such a sophisticated concept, with so many different elements, how difficult is it to measure in practice?

CHN: The advantage of natural capital as a concept is that it helps prevent the unintended consequences that can come from pursuing a single objective. Most things operate better on a balanced scorecard. As an example, you could pursue reducing carbon emissions – but at the expense of not optimizing water. We think that we need to manage the richer, but slightly more complex triumvirate of criteria around biodiversity, carbon and water, which together we see as nature, in order to build the resilience of food production. And remember that Mother Nature is smart. She built a fully biodiverse system to make that resilience possible.

So, we're in the process of adopting a natural capital balance sheet methodology at a portfolio level. To start with, we are plotting, in granular detail, what natural capital assets we have on our properties and then translating those data points into a value. That could be a replacement value. With pollination, for instance, if you can't rely on nature to do it, you have to do it by hand – and there are examples in Asia outside our properties, where the breakdown of bees has been so bad that the farm workers have had to pollinate by hand at huge expense.

We recognize that some natural capital assets are priceless and we retain those on our balance sheet as an inelastic, irreplaceable value. But what we do want to do is rattle the assumption that production is the only service that our

farmland and timberland properties are delivering. We want to present the richer perspective of everything else that we're managing. And in that way, we're hoping that we can enhance the natural capital because we'll be able to manage it better once its measured.

Q Every farm and forest is different - so how can the principles of natural capital management be applied consistently?

CHN: It's vital to have specialist teams on the ground, who all have relevant local knowledge. We have water managers, agronomists, horticulturalists, silviculturists and other technical experts, who are working day-to-day, giving operating advice on the harvesting, climate monitoring, biochar application, extending riparian buffer zones, planting cover crops and so on. Some of these experts work with tenants or farm operators across several generations. We have an investment manager in US row crops who has worked with tenants across three generations of farming – and that's not a one-off.

We're really making big strides in gathering better ESG data. It's vital that we measure soil organic matter, water usage, GHG emissions and other metrics, to enable us to better improve operations. We're really trying to be more transparent in how we report and how we share some of these stories.

SM: We're trying to provide investment solutions that are diversified across the investment spectrum in terms of natural capital. We see that based on land-based investments, predominantly involving farmland and timberland. We want to be able to customize so investors can tailor their own allocations based on their specific requirements at their portfolio level, and then making it convenient for investors to look at natural capital. Transparency and reporting are important parts of delivering these investment solutions.



Q Can improved management of natural capital affect an asset's financial valuation and performance?

SM: Farmland and timberland have some very attractive characteristics, besides the benefits of natural capital. Historically, both asset classes have delivered strong returns with fixed income-like volatility. They also have a negative correlation with equities and a low-negative correlation with bonds. And both farmland and timberland have a very strong and positive correlation to inflation, which a lot of investors are really focusing on today. So, these assets are a really good hedge in a portfolio.

Enhancing natural capital also enhances the resiliency of an asset over time. A more holistic approach, which balances growing the crop and managing the natural capital assets, means that the farm is more resilient to shocks that might come from rainfall or weather

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Q What practices can be employed to allow agriculture and forestry to enhance natural capital?

CHN: There is doom and gloom about the threats to nature, but we reframe that and think of the opportunities that natural capital can provide. There are real-life solutions for nature, climate and people that we are fortunate in being able to offer.

Nature-based solutions involve measuring, protecting and enhancing our natural capital and the ecosystem services they provide. On the ground, this means that we have been actively introducing wildflower strips, beehives, cover crops – and even owls for natural pest control.

A good example is a trial we ran on one of our viticulture properties in California. We had sandy soils in a part of the farm, with very little of the organic matter needed for optimal soil structure. So, we experimented with biochar, a carbon-rich material derived from forest debris or agricultural residue. It helps to fortify existing organic matter, which enhances soil structure and moisture retention, and promotes communities of beneficial micro-organisms. We found that at harvest, the biochar treatment increased yields by 22 percent.

We're also focused on our net carbon footprint. We manage over 235,000 acres of native forest in Brazil, which is not ever going to be cultivated under our ownership due to our zero-deforestation policy. In addition to that, we have projects to reforest degraded land with native species on some of our agricultural properties and in projects on our timberland. ■

fluctuations. And this will enable more consistency in returns.

Just as we've seen with the development of carbon markets, at some point in the future there may also be markets for other ecosystem services. That's another way that enhancing natural capital assets could potentially add to the financial value of the land over time.

Also, we're seeing changes in consumer preferences. There is more awareness of the food supply chain and the impacts that's having on the environment. In the future, it might be possible to show consumers through blockchain or other technologies, that their food came from a farm that has been managed in a regenerative, sustainable way.

CHN: Downstream companies also want to be able to make claims about carbon sequestration and other ecosystem services in their supply chains. Hundreds of food processors and retailers have committed to science-based

targets based on the Paris Agreement. So, a farm that is able to demonstrate better management of carbon and other aspects of natural capital may be able to attract a premium. It may be able to secure longer-term offtake agreements because the downstream companies that make claims about their value chain will be tied to the farms that can show responsible management of ecosystem services.

Q What role will technology play in helping asset managers enhance natural capital?

SM: What we're producing today is not enough to feed the world of the future. There is pressure on the agricultural and forestry industries to increase production in order to meet basic human needs in the future as our population grows. At the same time, we need to reduce the environmental impacts – and technology is going to play a really important role in enabling that.

For example, there is new see-and-spray technology for applying herbicides, which uses a combination of cameras and artificial intelligence to know when something is a plant and when it's a weed. Then by only spraying the weed, herbicide application is reduced by up to 80 percent. It also saves the farmer money by reducing the herbicide input costs.

CHN: I was in California a couple of weeks ago, where the role of technology is... stark. The drip irrigation techniques or the lining of the reservoirs to prevent leakage, is a needs-must scenario for them. Necessity is the mother of innovation. They've got to find ways to reduce water usage. Not only because of climate change, but because of water restrictions – and that's delivered a whole range of water-based innovations.

Satellite imagery is going to become increasingly important, because we'll be able to more easily identify areas that have an opportunity to be restored. Doing that on foot is very expensive. So, satellite imagery opens up a lot more doors and will enable us to do more ecosystem restoration at scale, and quicker.

SM: Something else to bear in mind is that we're able to collect increasingly huge volumes of data. We have satellite data, we get data from weather stations or water probes in the soil, and we get yield data from the harvester. But how do we make sense of that data, how do we use it to help us make improvements?

For this, we need software and systems that interpret the data and provide us with results that we can then implement on the ground. That's what I think will drive the next wave of technology gains. We need to be able to harness the information that we collect and then implement the results in a far more efficient manner than how it might have been done historically. ■