**Keynote address by IUCN Director General Julia Marton-Lefèvre at the Esri International User Conference (Esri UC)**

**San Diego, California, 23 July 2012**

Good afternoon, Ladies and Gentlemen,

Just a month ago, on a remote Pacific island, the world of species conservation lost one of its icons.

His name was Lonesome George, and he was the last of his kind – giant tortoises that shuffled the Earth during the age of the dinosaurs.

With George's death, the Pinta tortoise subspecies of the Galapagos has become extinct, and the richness, diversity, and beauty of life on the planet was diminished.

Lonesome George's lonesome end was well documented — unlike many other species that disappear from our planet totally unnoticed.

In fact, while modern technology allows us to monitor the growth of global human population almost in real time, we still don't know some even basic information about other life on our planet: how many species — animals, plants and fungi — there are out there.

Estimates range from 5 to 100 million, with the latest best estimate given by scientists being 8.7 million.

Only a small proportion of the total number of species, around 15 percent, has been described and formally named by scientists.

The IUCN Red List of Threatened Species covers over 60,000, or just 3 percent, of all known species.

Still, the IUCN Red List is considered the world's most comprehensive and authoritative source of information on the conservation status of animals and plants.

It is the result of the efforts of thousands of volunteers of IUCN's Species Survival Commission as they work together around the world to map, maintain and publish these data. These are the logos of more than 100 specialist groups, including on bears, grasshoppers and orchids.

I would also like to acknowledge and thank the IUCN Red List partners: NatureServe, BirdLife, Conservation International, University of Rome, Zoological Society of London, Wildscreen, Royal Botanic Gardens Kew, Botanic Gardens Conservation International, and Texas A&M University. We couldn't manage without them.

The Red List does cover all major groups of species: mammals, birds, amphibians, sharks, reef-building corals, conifers, cycads, mangroves and seagrasses. The biggest gaps are among the fungi, plants and invertebrates.

This sample of species indicates how life on Earth is faring, how little is known, and how urgent the need is to know more.

A couple of years ago, a group of prominent scientists, including E.O. Wilson and Simon Stuart who is here with us, designed a concept to make the IUCN Red List representative of all life on Earth.

They called this idea ***The Barometer of Life***.

The idea is to bring together taxonomists, biogeographers, ecologists, conservationists, and amateur naturalists to bridge the gap in our knowledge of global biodiversity.

In practical terms, the Barometer would triple the number of species currently assessed to 160,000, within five years.

Such a barometer would be one of the best investments for the good of humanity.

At the moment, however, the barometer of life is falling rapidly. It shows us that a storm is indeed brewing.

According to the latest update of the IUCN Red List, one in four mammals, one in eight birds, one in three corals and two out of five amphibians are threatened with extinction.

As an aside, one of the species on the Red List that is doing rather well is Homo sapiens. We are listed as being of *Least Concern*, with population numbers increasing.

You may justly argue that species extinctions are part of the evolutionary process.

It is so. But what we are witnessing today is species disappearing up to 1,000 times faster than the natural extinction rate calculated from fossil records.

There is a good reason for us to care about wild species going the way of the dodo — or, indeed, of Lonesome George.

These species, together with their genes and ecosystems in which they live, known collectively as “biodiversity”, are the very foundation of our wellbeing and indeed our own survival on this planet.

They are the source of our food, water, fiber, shelter, medicine — the list goes on.

On top of meeting our basic needs, nature is also the source of inspiration; it recharges our batteries and nourishes our soul.

Speaking of nourishment, more than one billion people worldwide rely on fish for their major source of protein; however, one in three fish stocks is currently being overfished.

I don’t need to remind you what happened when the once flourishing North Atlantic cod fishery collapsed, and the impact this had on the communities on Canada’s eastern seaboard. In Newfoundland alone, over 35,000 people lost their jobs and livelihoods.

Around the world, overfishing costs us an estimated 50 billion US dollars ***every year***.

On land, only four crops (wheat, maize, rice and sugar) supply more than half of calories and proteins in the human diet. Imagine what would happen if we were to lose one or more of them?

An historic example well known to you is the Irish Potato Famine which killed over one million people — and resulted in the greatest influx of Irish migrants to the United States.

If we continue losing many of the "wild relatives" of our staple crops as we do today, we lose the genetic diversity to develop new strains of food crops that are more nutritious, more resistant to disease, and more resilient to climate change.

Without such diversity, we would be literally biting the hand that feeds us.

Nature also keeps us healthy. Here in the United States, half of the 100 most-prescribed drugs originate from wild species. One of them is taxol, widely used in cancer treatments.

It comes from a tree called the Himalayan yew, and this tree has just entered the top threat category — *Critically Endangered* — on the IUCN Red List. Imagine how many more possible future cures could disappear before they are even discovered!

Fortunately, not all news from the Red List is bad. Conservation has centuries-old roots and there is increasing evidence that, when we put our mind to it, it works.

One such good news story is a Black-footed Ferret, which was considered to be Extinct in the Wild just 15 years ago. It has now been reintroduced back into the prairies of the western US states and Mexico.

Since the global ban on commercial whaling in 1968, the Humpback Whale has made a remarkable comeback and its population now stands at 60,000 and growing. This recovery also allowed a thriving whale watching industry to develop. Imagine if you could never have the joy of scanning the horizon in the hopes of sighting a whale!

The Southern White Rhino was poached to near extinction. By 1900, no more than 50 survived in a single park in South Africa. Thanks to strict protection measures, 100 years later there were approximately 20,000 animals roaming across southern Africa.

However, even with this success, there's no room for complacency. Today we are witnessing the worst rhino poaching crisis in history, with rhino horn fetching record prices on the black market.

These stories illustrate why we need the Red List in the first place: to understand the challenges; set global conservation priorities; mobilize conservation action; and influence decision-making.

What we need most is to ***connect data with action***. Achieving all of this would be impossible without cutting-edge GIS technology provided by Esri.

GIS helps us know where the species are. It has already helped us capture distribution information for about 40,000 species on the Red List.

Thanks to your wonderful technology, we know where to find all the known mammals, birds, amphibians and a quarter of the world's reptiles.

We have the same information for sharks, tuna, reef-building corals and many more in the marine realm.

We know the location of all freshwater fish, mollusks, crabs, dragonflies and plants in Africa, Europe and parts of Asia.

GIS also helps us locate areas of high biodiversity importance and thereby guide decisions about conservation action and policy.

For this, IUCN aims to integrate the spatial information in the Red List and the World Database on Protected Areas with two new products we are currently working on: Key Biodiversity Areas and the Red List of Ecosystems.

This is but one area where IUCN can provide important inputs to government, corporate, and NGO use of GeoDesign. This will help them make wise decisions to avoid further species and habitat loss and its consequences for human wellbeing.

GIS also allows businesses to access and use biodiversity data for decision-making. For example, IUCN has been working with Holcim, the Swiss cement company, to develop and implement a Biodiversity Management System. This system uses IUCN Red List data and the World Database on Protected Areas to classify the biodiversity importance of Holcim sites.

Thanks to our collaboration with Esri, IUCN has built strong GIS capacity. Eight thousand experts from the IUCN Species Survival Commission have access to GIS software and training, for the Red List and for their field work.

I am very excited to launch here today the online interactive IUCN Red List map built on Esri's ArcGIS 10.1 for Server. I would now like to invite my colleague Vineet Katariya to give us all a short demonstration.

Thank you Vineet, I expect that our partnership will bring about more enlightened decisions for people and nature.

Ladies and Gentlemen,

The IUCN Red List must not be seen as the end of the line for a species. It must mark the beginning of a new chapter in the story of conservation success.

That's why IUCN launched the SOS – Save Our Species Initiative in 2010 together with the World Bank and other partners including from the private sector. SOS has already helped conserve close to a hundred threatened species in over 30 countries.

But we need your ***support*** — whether as a GIS professional, a scientist, a conservation volunteer or a concerned citizen willing to advocate for better and more inclusive consideration of biodiversity in decision-making!

We must invest in broader and deeper knowledge, make it more accessible to a wider audience, and more applicable to a greater range of human activity.

It is these latter two investments where GIS can play a critical role — not only to organize and visualize the data, but also to allow data on Red List species to be incorporated into the GeoDesign decision-making framework.

It is really a dream come true for me to be able to meet this amazing GIS community. You are the unique group of people most capable of understanding the value that GIS brings to addressing the fate of the richness of life on our planet.

I am convinced that by joining forces between GIS geniuses such as yourselves and committed IUCN scientists we can make a real difference.

So — let us agree to focus on the present and future and not look back at the demise of Lonesome George. That is, except as a cautionary tale of what happens when human intellect and good intentions are not backed by advanced technology.

That's why this Esri conference is so important — it provides a unique opportunity to bring our passion for nature together with your technological expertise to achieve great results.

I also hope to see many of you at the IUCN World Conservation Congress, which will take place just a few weeks from now, from 6-15 September, on the beautiful South Korean island of Jeju. The Congress will be a premier gathering to address the world's biggest conservation challenges.

And — there is always hope. On the sad day that Lonesome George left us, we received some wonderful news from the Way Kambas Sanctuary in Indonesia, where the third ever Sumatran Rhino was born in captivity.

Here's a photo of 4-day old "Andatu" which means 'Gift from God" in Bahasa Indonesia with his mother "Ratu". The Sumatran Rhino is very close to extinction, and we in IUCN have made it one of our top priorities for saving.

In fact, we met with the President of Indonesia just last month to discuss the rhino crisis, and this meeting prompted him to declare the International Year of the Rhino.

Let's resolve among us that the Sumatran Rhino should never go the way of Lonesome George.

IUCN will keep on this mission. And I hope you will join us.

Thank you for giving me this amazing opportunity to address the Esri conference, and thank you to all of you for your attention!

There are many ways in which you can help. We of course need both cash and in-kind support: to be able to do our work better, faster, and reach a much broader audience.

1. **We need solid documentation of nature as our life support system**, so we can reduce the risks that both people and nature run when they transcend planetary boundaries. To transform the IUCN Red List into a true Barometer of Life, and to make it truly representative of

all life on Earth, we would need an investment of around 60 million dollars. Yes, it does sound like a lot of money but good science costs and we can deliver! Out of this total budget, an investment of 3.5 million dollars would allow us to do the necessary upgrades to the IT systems and provide user support, which is an area most familiar to you. Remember, this will be a contribution to an unprecedented and much-needed global public good which will be used by all for the benefit of all life on Earth.

2. **We need help to bring IUCN knowledge to the world for conservation decision-making and action.** We want to turn our knowledge products into the best possible web service for searching, smart downloading, learning, communicating and ultimately action on the ground to improve people's lives in our and future generations. Initially this would be for the IUCN Red List of Threatened Species. We're launching similar, spatially-related knowledge products on ecosystems, key biodiversity areas and human dependence on nature. We ask the GIS and other IT specialists in the audience to donate their time and expertise to help us make these key knowledge products user-friendly and accessible to all.

3. And, we would be glad to establish links between you and **the groups of IUCN specialists working** on all kinds of weird and wonderful species –from the majestic African elephant to the humble bumblebee, and from beautiful orchids to perhaps less popular lichens, as well as on specific conservation issues such as captive breeding. The IUCN Species Survival Commission has more than 100 of these groups — if each of these groups of scientists had GIS experts working with it, the results would change the way conservation is done and understood!

4. All this will allow us to better understand what is happening with our planet and provide the best possible guidance to governments, private sector and others. At the same time, we are often asked "So what are you doing about it?" The response is "many things" but the obvious one is **SOS – Save Our Species.** You can contribute financially and join this partnership to help us mobilize our knowledge, our experts and our unique NGO membership to tackle the most visible part of the problem, the loss of wildlife.

5. Immediately after this talk, you can join me at the IUCN exhibition stand to get more information and sign up to support your favorite species or specialist group.