

New study reveals catastrophic loss of Cambodia's tropical flooded grasslands

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Around half of Cambodia's tropical flooded grasslands have been lost in just 10 years according to new research from the University of East Anglia. The seasonally flooded grasslands around the Tonle Sap, Southeast Asia's largest freshwater lake, are of great importance for biodiversity and a refuge for 11 globally-threatened bird species, including the Bengal Florican. They are also a vital fishing, grazing, and traditional rice farming resource for around 1.1 million people. Credit: Dr. Charlotte Packman / University of East Anglia

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Research published today in the journal *Conservation Biology* quantifies for the first time the area's catastrophic loss of tropical flooded grassland.

The grassland area spanned 3349 km² in 1995, but by 2005 it had been reduced to just 1817 km² – a loss of 46 per cent.

Despite [conservation efforts](#) in some areas, it has continued to shrink rapidly since, with a further 19 per cent lost in four years (2005-2009) from the key remaining grassland area in the southeast of the Tonle Sap floodplain.

Factors include intensive commercial [rice farming](#) with construction of irrigation channels, which is often illegal. Some areas have also been lost to scrubland where traditional, low-intensity [agricultural activity](#) has been abandoned.

The research has been led by Dr Charlotte Packman from UEA's school of Environmental Sciences, in collaboration with the [Wildlife Conservation Society](#) Cambodia Program and BirdLife International. It was funded by the Critical Ecosystem Partnership Fund.

Dr Packman said: "Tropical and flooded grasslands are among the most threatened ecosystems globally. The area around the Tonle Sap lake is

the largest remaining tropical flooded grassland in Southeast Asia. It is hugely important to both biodiversity and the livelihoods of some of the world's poorest communities. Our research shows that these grasslands are disappearing at an alarming rate.



The seasonally flooded grasslands around the Tonle Sap, Southeast Asia's largest freshwater lake, are of great importance for biodiversity and a refuge for 11 globally-threatened bird species, including Sarus Cranes. Credit: Dr. Charlotte Packman / University of East Anglia

"These unique grasslands are home to many threatened birds including by far the largest remaining population of the critically endangered Bengal florican - the world's rarest bustard. This bird has experienced a dramatic population decline of 44 per cent in seven years due to the destruction of its grassland habitat. Other birds under threat in this area include sarus cranes, storks, ibises and eagles.

"Rural communities have been left vulnerable to land-grabbing and privatisation of -communal grasslands. Traditional, low-intensity use of the grasslands by these communities, such as burning and cattle-grazing, help to maintain the grasslands and prevent scrubland from invading.

"Intensive commercial rice production by private companies, involving the construction of huge channels and reservoirs for irrigation, is denying local communities access to the grasslands on which their livelihoods depend and destroying a very important habitat for threatened wildlife.

"This high-speed conversion and land-grabbing has intensified pressure on already threatened species and on the marginalised rural communities that depend on the grassland ecosystem.

"The loss of this entire ecosystem from Southeast Asia is imminent without immediate intervention. In 2009 only 173 km² of grassland were under some form of protection, but by 2011 even these protected areas were shrinking – with 28 per cent lost to intensive cultivation.

"Flooded grasslands in Thailand and Vietnam have already been almost completely lost. Only a strong political commitment to protection and restoration can prevent the impending loss of the last major flooded grassland in Southeast Asia."

Researchers compared aerial photographs taken in 2005 with land cover maps from 1995 and 1996. They found that the greatest losses had occurred in the north and west and in inner floodplain areas. The least affected area was in the southeast of the floodplain.

They then collected habitat information from almost 1,000 points to establish the rate of habitat change between 2005 and 2009 in the largest remaining area of grassland. This showed that grassland in the key

southeast area had declined from 923 km² to 751 km² in just four years. Almost all of this loss was attributable to either intensive rice cultivation, which had risen by 666 per cent during that period, or associated newly constructed reservoirs.

Dr Packman added: "Between 1995/1996 and 2005, the encroachment of scrubland was the major cause of grassland loss, due to a reduction in traditional, low intensity agricultural practices in the grasslands. Since 2005, intensive rice cultivation by private companies has rapidly become the most serious threat to these [grasslands](#), destroying huge areas at a very alarming rate."

More information: 'Rapid Loss of Cambodia's Grasslands' by Dr Charlotte Packman, Dr Thomas Gray, Prof Andrew Lovett, and Dr Paul Dolman (all UEA), Prof Nigel Collar (Birdlife International and UEA), Dr Tom Evans, Robert Van Zalinge and Son Virak (all Wildlife Conservation Society Cambodia Program), is published by *Conservation Biology* on March 18, 2013.

Provided by University of East Anglia

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