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Genomelink

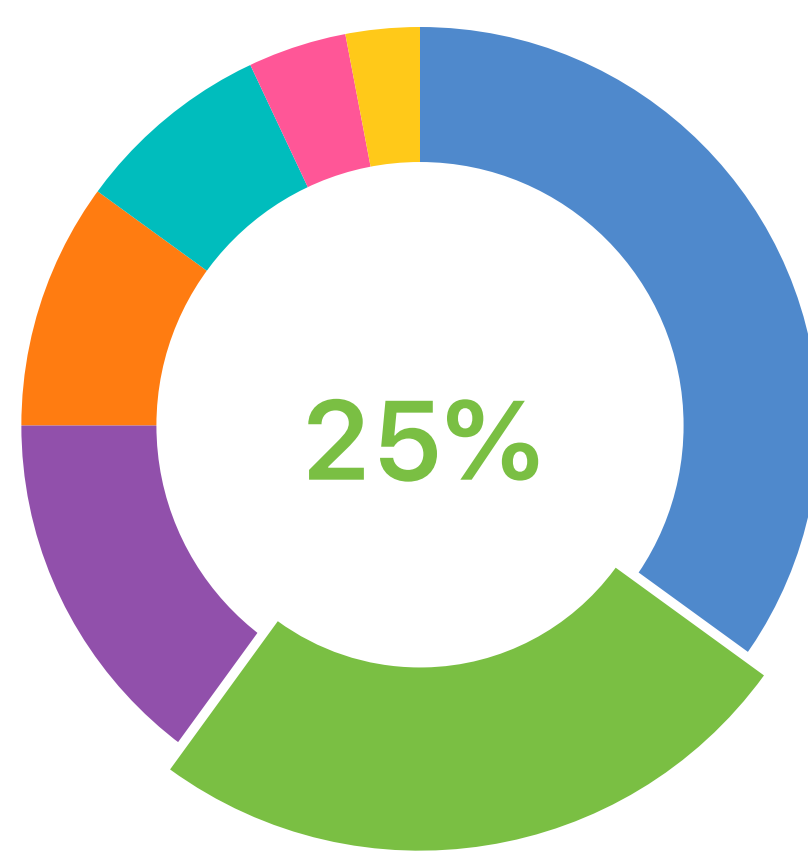
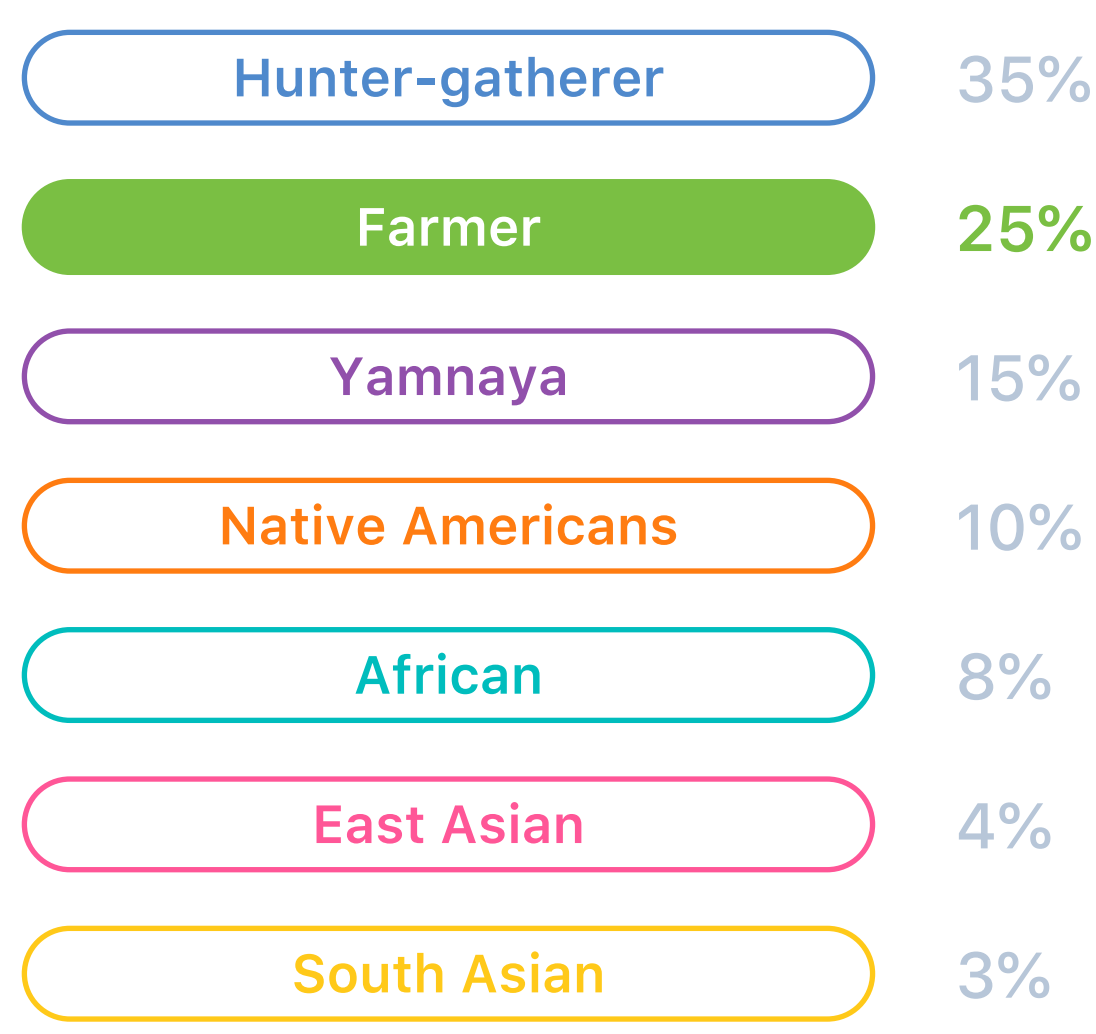


# Ancestry Report





# Your Ancient Admixture



## Farmer

Agriculture in Europe has origins in the Near East, back to the first farmers who cultivated barley and wheat in the hillocks of the Fertile Crescent. This lifestyle was brought to Europe 8,000 years ago from Anatolia, as settlements expanded across the Aegean into Greece and the Balkans. These Anatolian farmers gave rise to a diverse array of cultures from Spain all the way up to Scandinavia. Genetically and culturally very distinct from the aboriginal hunter-gatherers of the continent, these peoples do not seem to have mixed with the indigenous populations for thousands of years.

The final demise of the farming societies between four and five thousand years ago coincided with arrival of peoples from the Eurasian steppe to the east, who absorbed both the farmers and the last hunter-gatherers.



## Life of Farmers

The early farmers are thought to have had light skin, dark hair, and brown eyes. Rye, barley, wheat and peas were domesticated along with pigs, sheep, goats, and cattle.

At the end of the last Ice Age a variety of cultures developed in the Near East, from the Levant, up northward to Anatolia, and east into Iran, which adopted modes of existence that we identify with the "Neolithic Revolution." This "New Stone Age" is less defined by the style of tool, and more by the fact that these people tamed wild animals toward food production and began to plant cereals in a conscious and systematic fashion.

These people were the first known farmers, prefiguring transitions that occurred in other distant places such as New Guinea and Meso-America, and setting the template for human existence as village-life up until the Industrial Revolution.

Expanding demographically in their homeland, Anatolian farming peoples quickly spilled over into the Balkans. Rapidly spreading across the Mediterranean 8,000 years ago, they overwhelmed the local hunter-gatherers, marginalizing and assimilating them. Modern-day Sardinians represent the purest distillation of this ancient migration, being genetically isolated from later events, and adopting Indo-European language only during the Roman period.

Meanwhile, other settlers moved north through valleys in the interior of Europe, using the Danube to spread up into modern Germany, and clearing forests in locales suitable for their crops. But these first farmers did not marginalize all the hunter-gatherers in the north, who persisted in many pockets and were only absorbed into the farmers later. In Scandinavia farming was delayed for several thousand years because of the difficulty in adapting cereal agriculture to the cold northern climate.

The climax of the farming societies occurred after the exhaustion of the land due to the primitive nature of early agriculture. Famines likely resulted in warfare, judging by the militarization of their settlements in "long houses". Many of the farming people transitioned toward pastoralism and cattle culture before their ultimate demise at the hands of a new people.

## Migration history



Following the coastline of the Mediterranean or the valleys of the interior, the first farmers of Europe ventured out from their Near Eastern homeland, driven by overpopulation, and pulled by the possibility of fertile virgin lands.

- Farming began 12000-11000 years ago in southeast Turkey and northern Syria.
- By 9000 years ago the early farmers had spread across Greece.
- By 8,800-6000 years ago the early farmers had spread across the Mediterranean coast of Europe and up the Danube into Germany.

## Sardinians

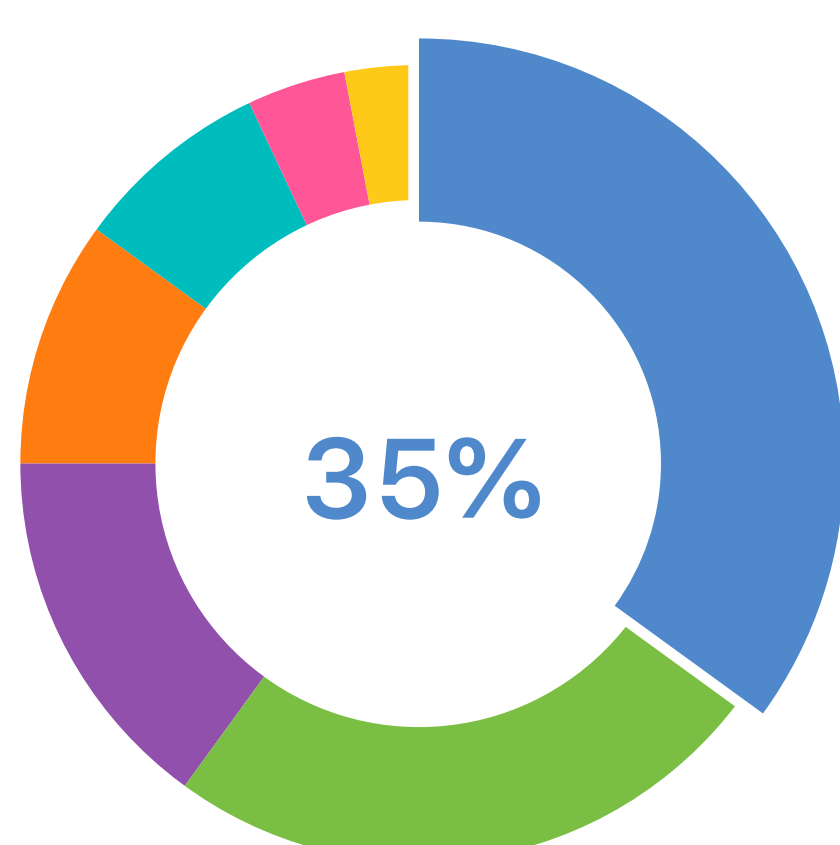
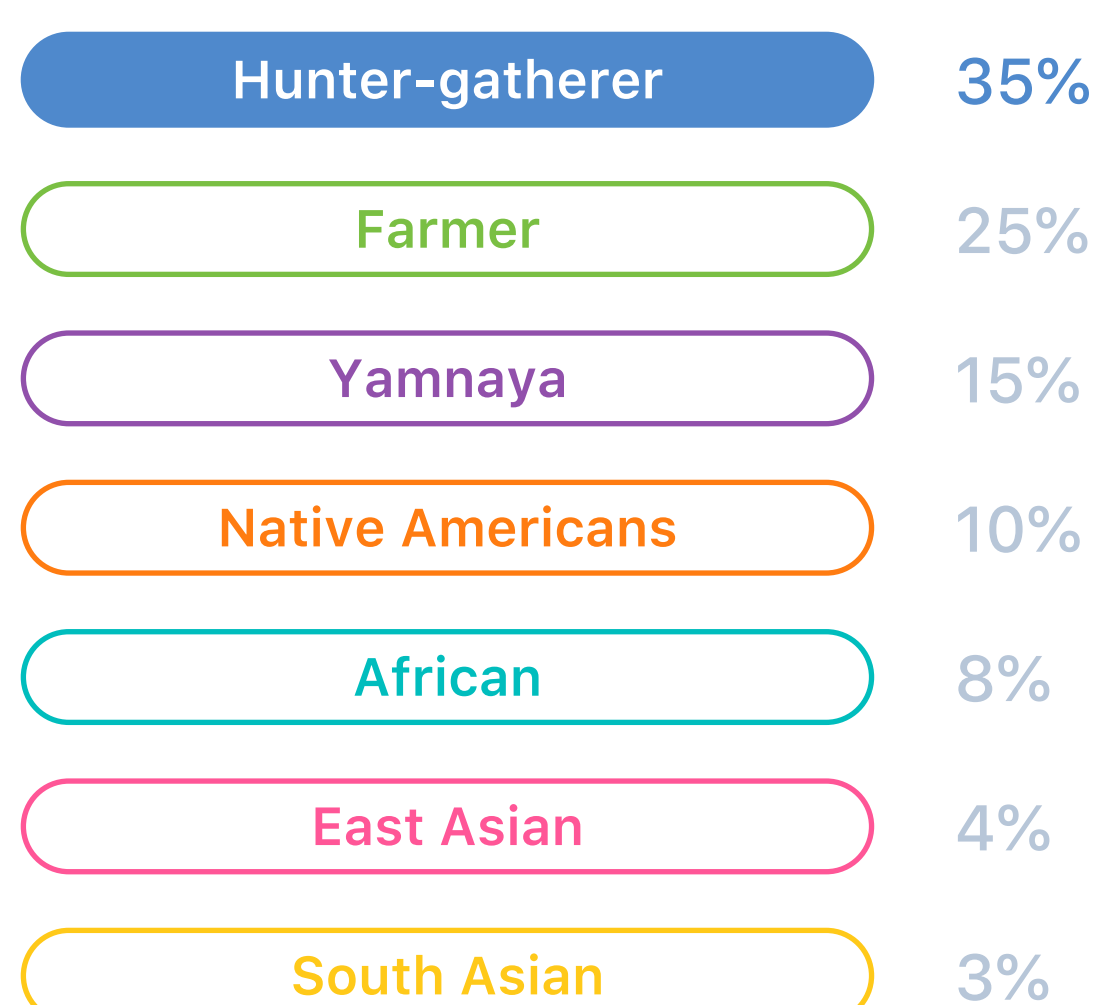


Modern-day Sardinians draw much of their ancestry from the early farmers. Because of their geographical isolation on an island, they were less impacted by later migrations that people on the mainland of Europe.

In particular, the highlands of Sardinia seem to preserve genetic signatures of the initial farming populations. The ancient language of the Sardinians is presumed to have been non-Indo-European, and their closest relatives on the mainland of Europe are the Basques, who speak a non-Indo-European language. Had a culture that worshipped goddesses.



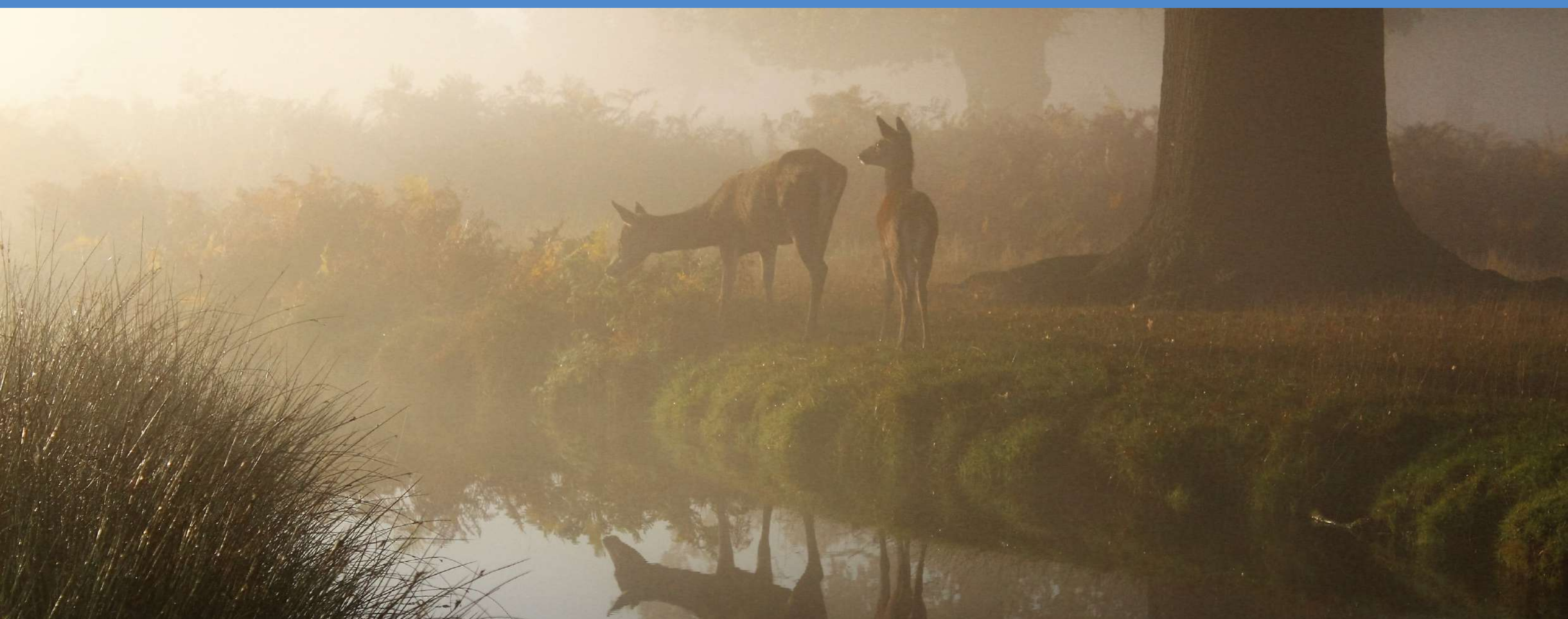
# Your Ancient Admixture



## Hunter-gatherer

The Mesolithic hunter-gatherers of Europe expanded north from refuges in the south of the continent at the end of the last Ice Age. With origins in the Near East during the Pleistocene these cultures and societies expanded rapidly into the lands uncovered by retreating ice sheets, exploiting rich resources in the new forests and teeming seashores.

Though these people retreated in the face of the expansion of farming, they persisted in Northern Europe until about 4,000 years ago, maintaining continuity with folkways with roots that stretched back to the Ice Age.



## Physical Characteristics

The western European hunters and gatherers had blue eyes, dark hair, and dark skin. About ~75% of the variation in blue vs. non-blue eye color in modern Europeans is due to genetic markers in and around the OCA2 and HERC2 genes.

These variants are rarer outside of Europe, and near absent outside of Europe and West Asia. When the first ancient DNA was extracted from hunter-gatherers who had been dominant in Western Europe before farming, to the surprise of many researchers, most of them turn out to have had the markers today associated with blue eyes, but not the ones for lighter skin or hair. At the end of the Ice Age, a higher proportion of Southern Europeans likely had blue eyes than today, but their skins were likely far darker.

## Migration history



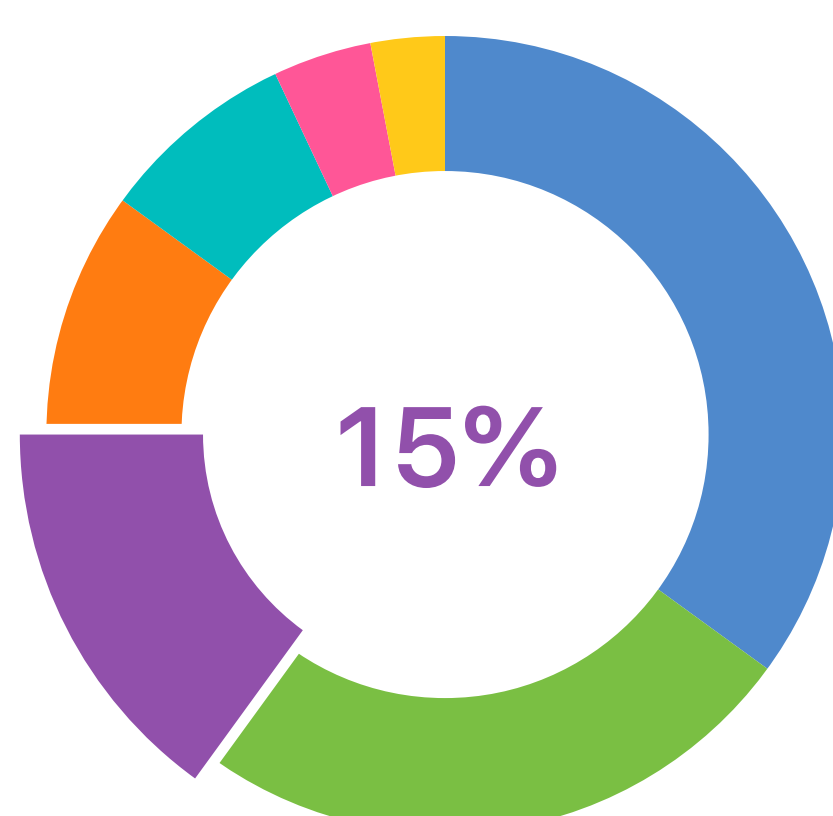
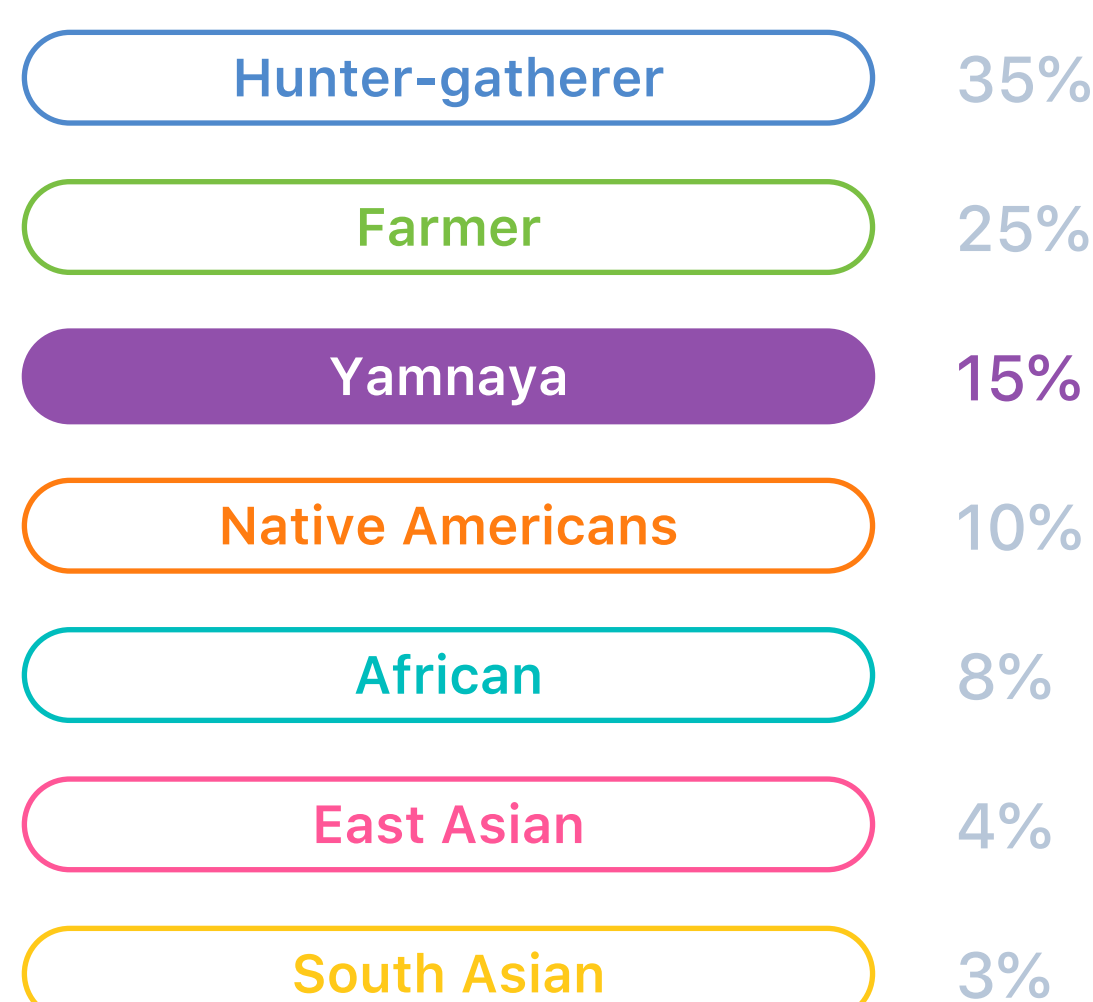
The ice age glacial wall that extended across Europe almost to modern Nice retreated and these populations move back north.

At the end of the last Ice Age Europe was occupied by hunting and gathering populations who had expanded out of West Asia 15,000 years ago, after the Last Glacial Maximum. These peoples were concentrated in the peninsulas of Southern Europe such as Iberia because they remained relatively habitable even during the coldest phases.

Within warming climates and expanding forests the hunter-gatherers migrated northward, following their game. In Scandinavia and in Northeast Europe they encountered other groups of hunter-gatherers, producing hybrid cultures.



# Your Ancient Admixture



## Yamnaya

Five thousand years ago on the edge of Eastern Europe, as the forest gave way to grassland on the south and east, a diverse array of related societies engaged on the Eurasian steppe. Descended from both ancient hunter-gatherer societies which flourished in Northeast Europe, and agriculturalists who moved up from the south in West Asia, these people pioneered a pastoralist form of life in the north.

Eventually, the pastoralists pushed west and ended the thousands of years of farmer domination, clearing the remaining forests for their pastures. The descendants of the steppe people were the ancestors of the various European societies which we know from ancient history, Celts, Germans, and Slavs in the north, Italians, Iberians, and Greeks in the south. The Indo-European language of the steppe now dominates all of Europe, and the gods of ancient myth, Zeus, Thor, and Jupiter, were their gods.



## Yamnaya's culture

The Yamnaya were one of the agro-pastoralist people who developed a new way of life on the western Eurasian steppe 5,000 years ago, setting a precedent that would reverberate down through history.

Exploited the newly invented wheel and newly domesticated horse abandoning their villages and turning into a mobile culture that could better exploit the resources of the steppe. Wagons became very important to their culture and are found in their burials. The words for axle, harness, pole, and wheel are common across all Indo-European languages, indicating that these technical terms arose in the original population before it expanded.

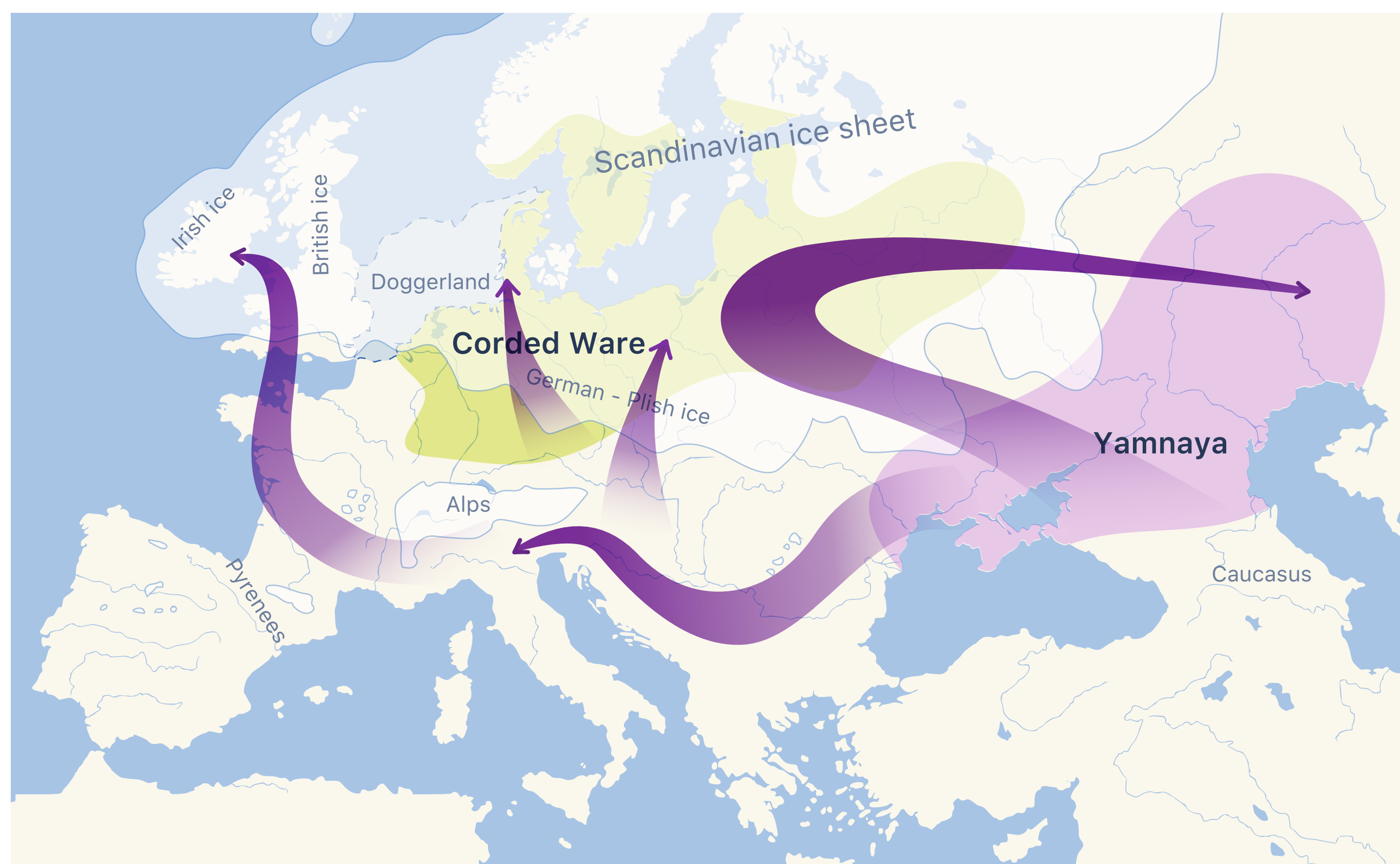
The horse allowed them to travel with large herds of livestock (cattle and sheep), which they grazed on the steppe.

Focusing on animal husbandry rather than cereal cultivation, the Yamnaya were taller and more robust people than the early European farmers. The ability to digest milk sugar, lactose, seems to come from them, as their patriarchal societies were focused around cattle.

Due to the success of the new lifestyle, the Yamnaya expanded in all directions. In Europe, their expansion was associated with burial mounds or Kurgans, and the retreat of the old farming cultures. Their interactions with the native European peoples gave rise to successor cultures, such as the Battle Axe people, or the Bell Beaker societies. In Northern Europe, the descendants of the Yamnaya were more successful than the farmers had been in those frigid latitudes, as they absorbed the last of the hunter-gatherers.

The gods of myth, and the barbarian tribes of antiquity, are all ultimately the scions of the Yamnaya.

## Migration history



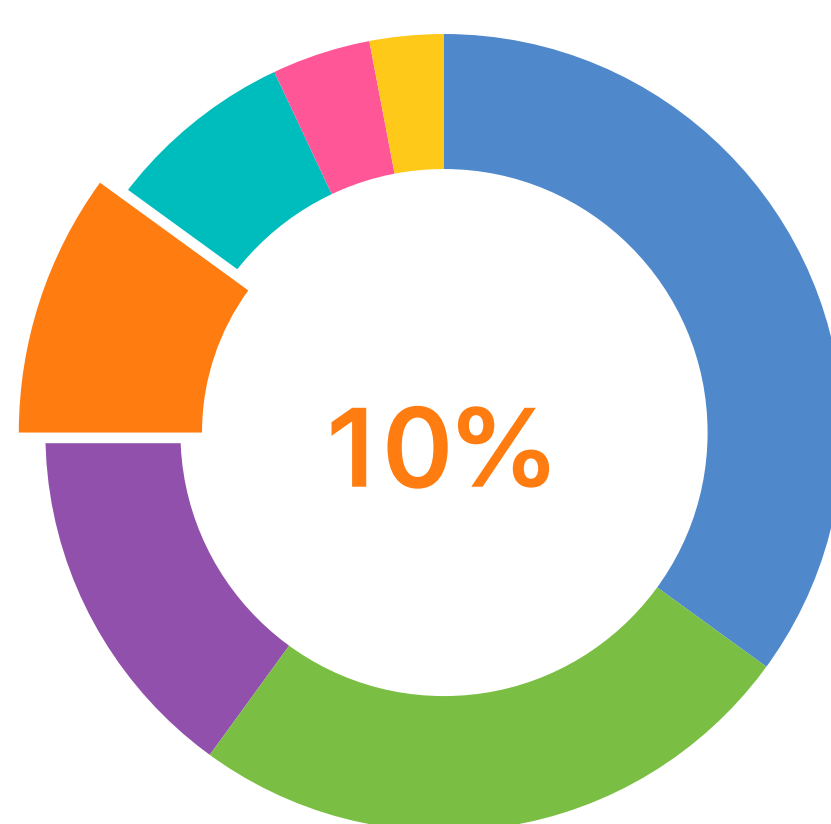
Out of the vast Eurasian steppe, the Yamnaya and their descendents pushed westward, searching for greener pastures. From the Urals to the Atlantic, the Yamnaya and their scions transformed the human geography of Europe.

- First emerged on the Russian steppe through the admixture with eastern European hunters and gatherers.
- Then, entered Europe around 4900-4300 years ago.
- Largely replaced the farmers of Europe, 90% in Britain and 30% in Iberia.



# Your Ancient Admixture

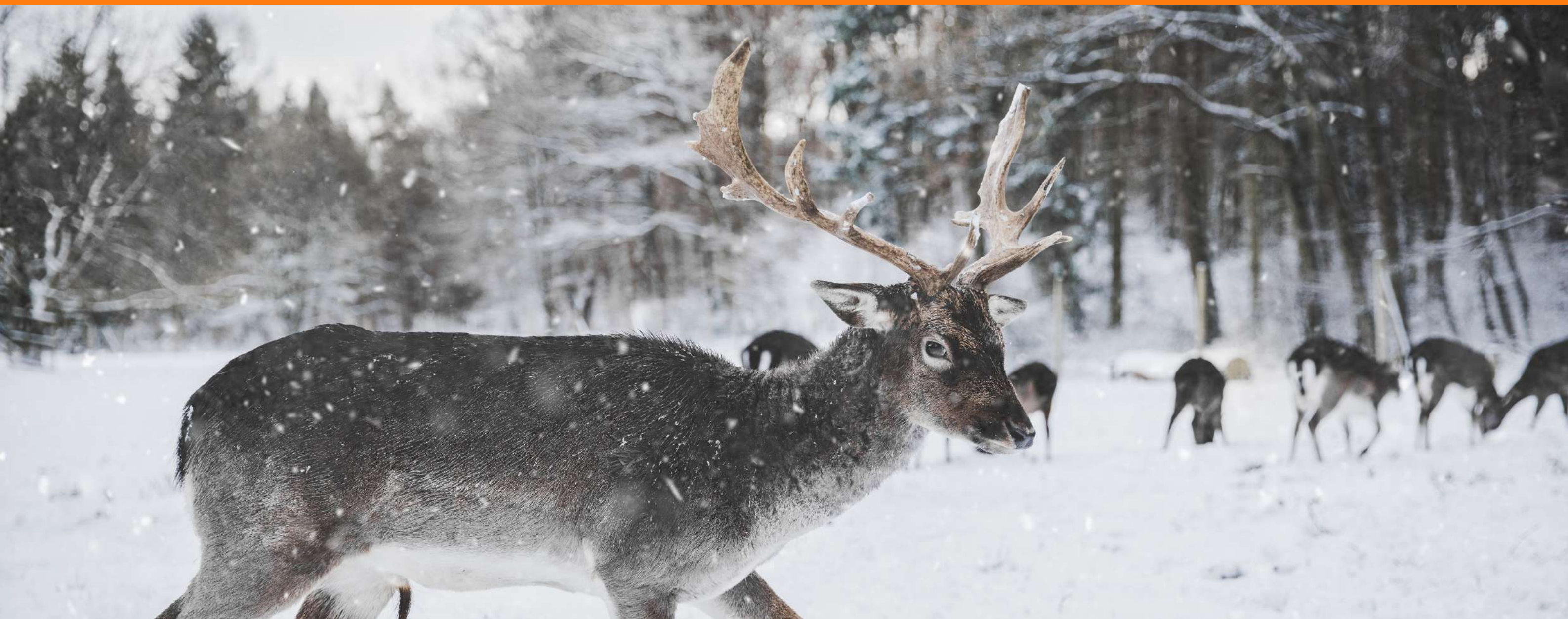
Hunter-gatherer	35%
Farmer	25%
Yamnaya	15%
Native Americans	10%
African	8%
East Asian	4%
South Asian	3%



## Native Americans

The Mesolithic hunter-gatherers of Europe expanded north from refuges in the south of the continent at the end of the last Ice Age. With origins in the Near East during the Pleistocene these cultures and societies expanded rapidly into the lands uncovered by retreating ice sheets, exploiting rich resources in the new forests and teaming seashores.

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## Unique culture (Tools and languages)

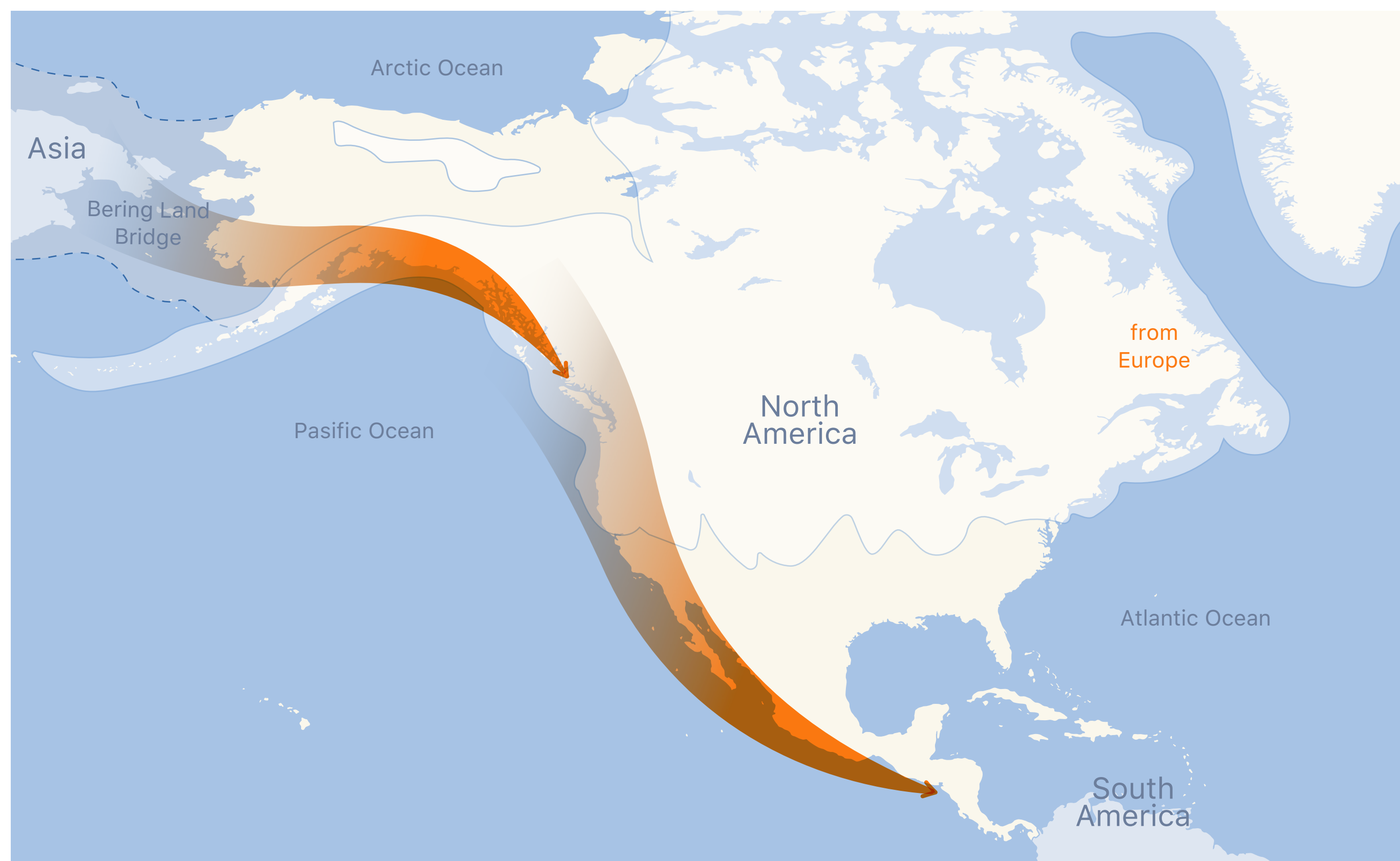
The Yamnaya were one of the agro-pastoralist people who developed a new way of life on the western Eurasian steppe 5,000 years ago, setting a precedent that would reverberate down through history.

The first humans to occupy the New World were also the descendents of some of the first humans to venture north into Siberia. With a culture oriented toward "big game," these people naturally moved eastward, and across territory which today is under the ocean due to the rise of sea levels. In this manner, Native American people are actually the scions of a lost continent of the Ice Age.

Once in the new continents these people spread rapidly, making use of their mobile foraging and hunting strategy. The ancient site at Monte Verde in Chile attests to the fact that it took only a few thousand years for humans to range across both continents. Just as in Eurasia their life-style was geared toward hunting and gathering, but just as in Eurasia and Oceania, after the Ice Age some of these hunters and gatherers settled down, eventually developing their own form of agriculture independently, corn in Meso-America and potato in the highlands of South America.

But not all mysteries are solved. Geneticists have discovered that some of the peoples in remote Amazonia are somewhat different from other indigenous populations. They show evidence in their genomes of descent from a people more closely related to the people of Papua New Guinea and Australia and mainland East Asians. There is still much to learn.

## Migration history

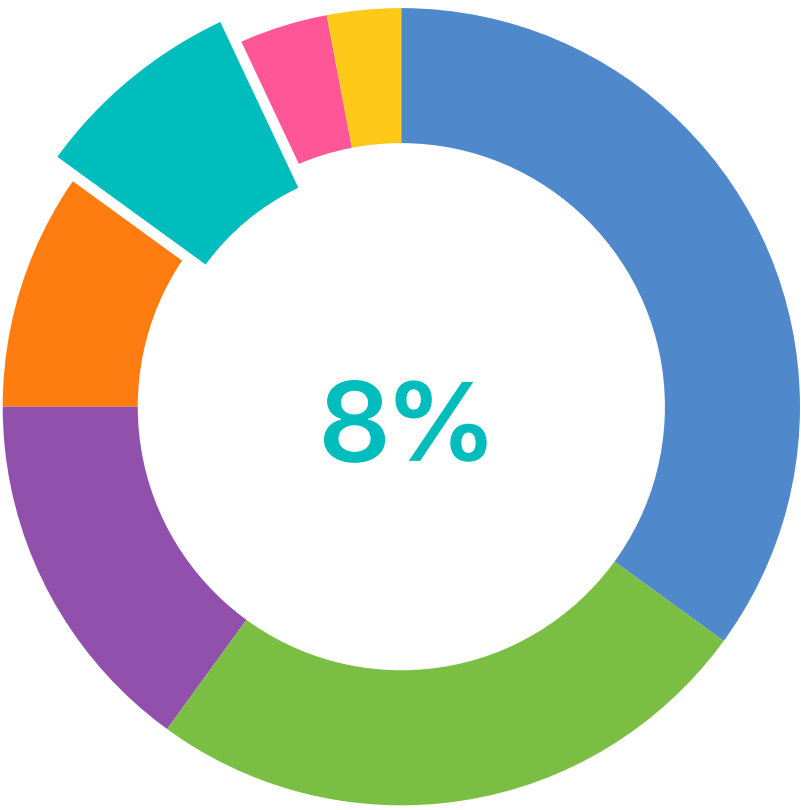
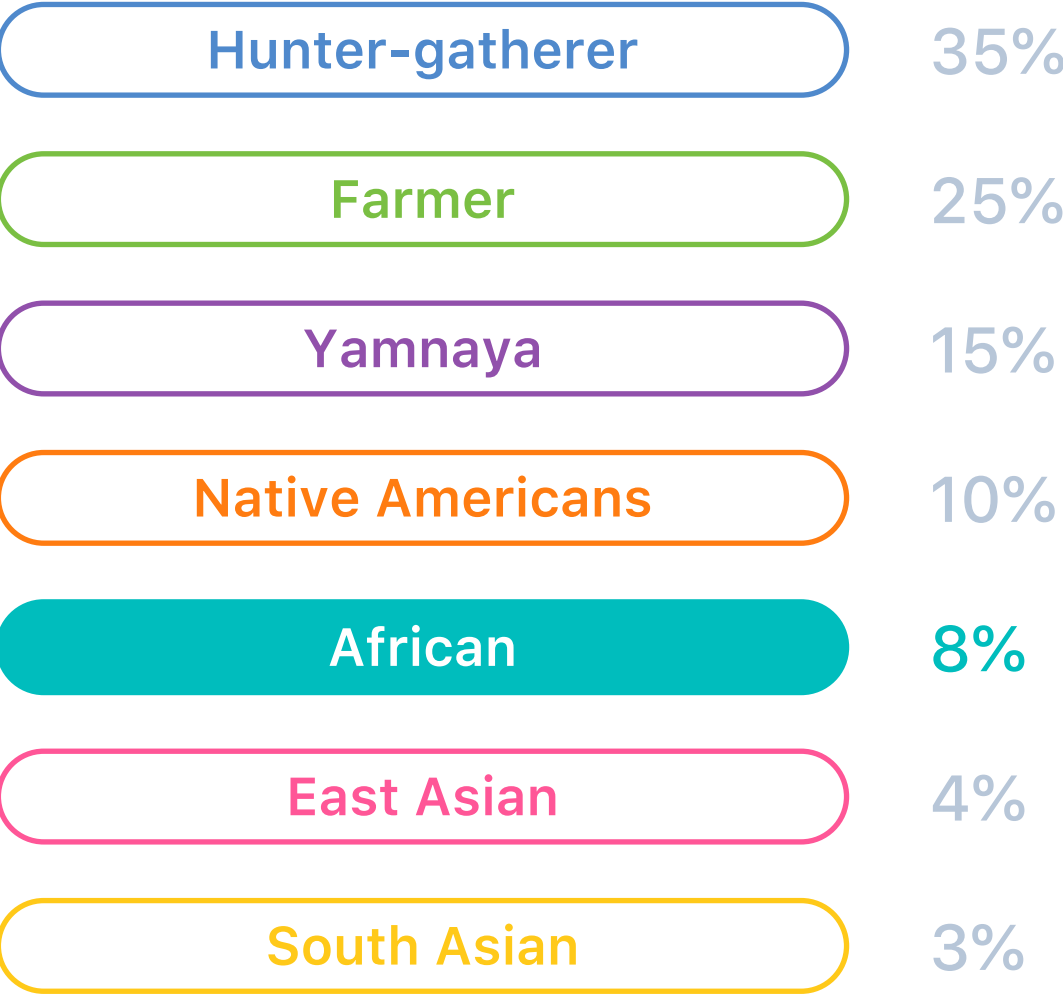


The native peoples of the New World descend from adventurous Siberians. In their quest for big game they inadvertently stumbled upon the vastness of the New World.

- Start in Siberia, 20,000 years ago.
- In Beringia 18,000 years ago.
- Arrows that move into North America and South America 15,000 years ago.



# Your Ancient Admixture



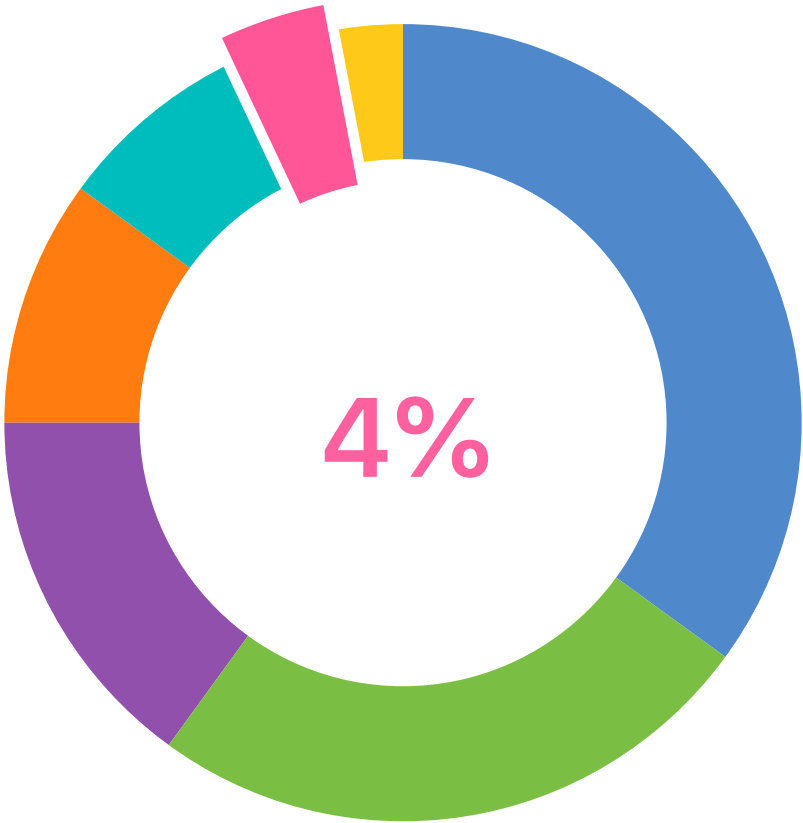
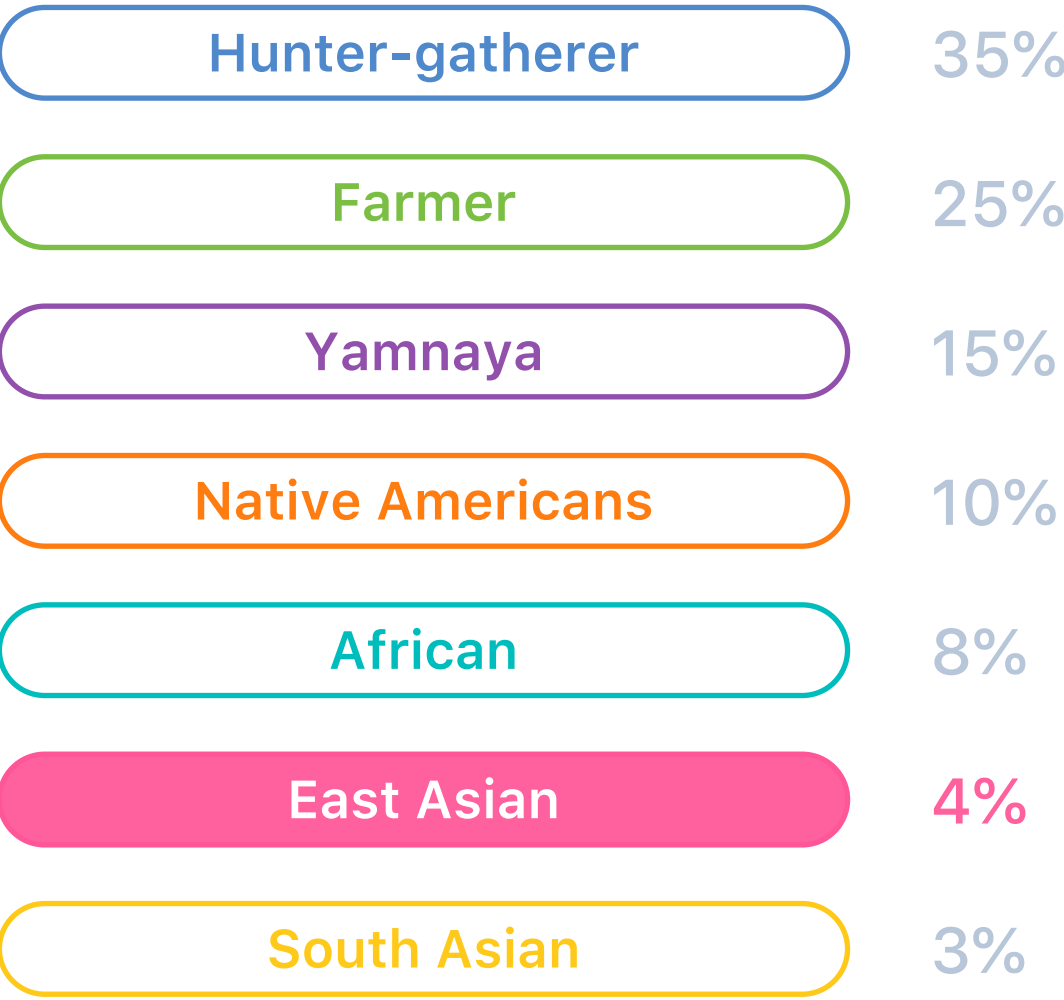
## African

Africa is the original home of humanity. While modern humans flourished outside of the continent for 50,000 years, within Africa our species had emerged by 200,000 years ago. Over the last few thousand years migration and slavery have resulted in the heritage of Africa spreading across all the inhabited continents. While West Africans were present in the New World as slaves, East Africans rose to power in Asia as ministers and generals in the service of rulers. From the Siddhi people of India to African ancestry in modern Spaniards, this legacy is how shared across many regions.





# Your Ancient Admixture



## East Asian

40,000 years ago modern humans swept across the Pacific seaboard of Eurasia. Ancient DNA from China already shows that East Asians began to diverge from people to their west and south. These are the distance ancestors of the modern Chinese, Japanese, and Koreans.

But the development of agriculture 10,000 years ago also saw a period of demographic expansion and mixing. Modern people like the Chinese share common ancestors, but also mixed with local people, producing a riotous diversity of local groups. The Japanese emerged out of the mixing of Yayoi rice farmers and Jomon hunter-gatherers.

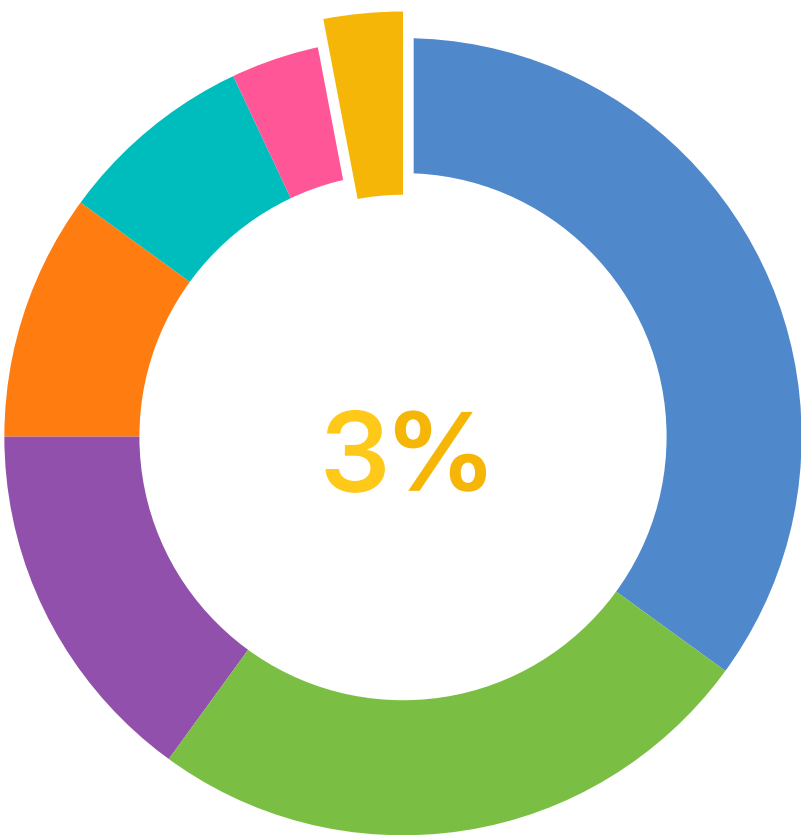
East Asians are a microcosm of human diversity and the processes that lead to that diversity. The descendents of intrepid explorers, the modern people of the region descend from further changes wrought by cultural innovation, from the invention of agriculture to the rise of empires.





# Your Ancient Admixture

Hunter-gatherer	35%
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## South Asian

South Asians emerge from the mixing of the people of western and southeast Eurasia 5,000 years ago. While their paternal ancestors are often more related to peoples to the west, their maternal ancestors are more like peoples to the east. The diversity of South Asians, 25% of humanity, is the outcome of recent mixing, and prefigures our modern world.

Like humans South Asians exhibit massive physical, culture, and linguistic diversity. From the Indo-Aryan peoples of the north and west, some of whom are light-skinned and light-eyed, to the Dravidian peoples of the south, small and dark-skinned. All emerge out of the same process and mixture.

These connections mean that South Asian ancestry and heritage is found far outside of modern South Asian. From closely related to Iranians, to Roma groups in Europe which descend from South Asian nomads.

