

# CHINA BIRD WATCH

# 中国鸟类观察

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## 大鸨专辑





# 在蒙古国观察研究大鸨

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翻译：刘刚

Our research team searches for Great Bustards through spotting scopes. We conduct most surveys, counts, and behavioral observations through spotting scopes. This helps us to avoid disturbance of the birds and obtain more accurate counts. These birds are wary and often move away from humans before humans can see the birds by eye alone.

欧亚文鸨联盟合影，团队成员共同寻找大鸨，调查计数以及行为观察。通过望远镜观察，可以避免惊扰大鸨，而且计数更为准确。大鸨比较警觉，人稍微靠近就会飞走。



蒙古的冬天漫长而严酷。3月，虽已有些许春意，但仍然乍暖还寒，白天平均气温为0℃，夜间平均温度低至-15℃。尽管如此，雄性大鸨已经开始成群聚集在蒙古北部库苏古尔省的传统繁殖点。这些鸟儿几乎每年都会来到相同的地方，称之为求偶场。有些求偶场在草原，有些则在农田。大鸨繁殖区的最北端，一度延伸到俄罗斯的森林。

当雄性在繁殖地开始绚丽的求偶炫耀，并与其它雄性竞争以争夺优势时，雌性个体则开始北归之旅。在陕西黄河和渭河附近越冬后，雌鸨必须飞行2000公里才能返回繁殖地。尽管大鸨是能够飞行的最重的动物，但大鸨飞行起来非常矫健而且迅捷。使用卫星遥测技术，大鸨以60-90公里/小时的平均速度飞行，藉以风力，最

高时速甚至可达120公里/小时。

一些雌鸨个体在一周内就可完成迁徙，但是，大多数通常需要两个月的时间才能完成。它们在途中会停歇数次，在中途停歇地，它们以植物为食，为飞行补充能量并为产卵做营养储备。它们倾向于选择温暖的天气在中途停歇，并趁着狂风继续旅程。每次途经新的停歇地，都会面临新的威胁。我们发现，佩戴卫星追踪器的大鸨，有一半在蒙古的中途停歇地死亡，还有一半则死于中国的停歇地或越冬地。死亡原因包括偷猎、中毒以及与电线碰撞。

大鸨长距离迁徙的导航机制，目前尚不清楚。根据与大鸨亲缘关系较近的波斑鸨 (*Chlamydotis macqueenii*) 的研究，先天的遗传因素可能影响一定地理方向上的移动倾

向。大鸨也表现出类似的现象。尽管大鸨具体迁徙路线和途中停歇地存在个体差异和年际变化，但总体方向始终是西北偏北。

在全年的大部分时间里，雄性和雌性大鸨分群聚集。只有在繁殖地，才可以看到它们雌雄混群。一旦到达繁殖地，一些雌鸨选择雄性并立即交配，另一些则边觅食边观察雄性的求偶炫耀行为，然后做出选择。交配是一件容易的事。雌鸨试图接近求偶炫耀的雄鸨，而雄鸨则翘起尾巴，扭转翅膀，露出先前隐藏的亮白色羽毛，使它从棕色的鸟变成了明亮的白色羽毛球。喉咙中的气囊充足了气，显示出细腻的蓝色皮肤斑块，胡须也竖立起来，使自己的眼睛看起来极具吸引力。雄鸨反复盘旋并重复炫耀行为，雌鸨几乎被催眠。短



暂交配后，雌鸨松开羽毛，迅速走开。除非这窝卵被破坏，否则她将不会再次拜访雄鸨。

在蒙古北部，一些雌鸨筑巢于长势正旺的麦田或休耕地，其他雌性则会在靠近森林边缘的草原上筑巢。巢很简单，就是地面上一个很浅很浅的坑。雌性一般产两个或三个卵，孵化期约四周。鸨科鸟类和犬科动物是大鸨卵和雏鸟的天敌。做了母亲的大鸨，沉稳而谨慎。她们每天仅从巢中外出一次去觅食。

即使在最理想条件下，大鸨的繁殖率也很低。人类活动会进一步降低繁殖成功率。人为干扰可能会使母亲从巢中惊吓，逃脱的飞行会让掠食者注意其巢的位置。幸运的是，对于大鸨来说，每年的繁殖季节，当地牧民并没有占据山谷中的繁殖地，因为他们已经带着牲畜迁移到夏季牧场。但是，农业操作仍然威胁着大鸨的繁殖。人们前往山谷进行耕作和播种，然后收割庄稼。田间的大鸨蛋和小鸟可能会被农业机械碾压。

山谷中的农民不使用农药，因为大鸨可以帮助清楚蝗虫和甲虫等

农田害虫，担当着生态卫士。这些昆虫富含蛋白质，雏鸟通过取食得以快速生长。到了秋天，幼鸟与母亲并肩行走，并在候鸟集结点聚集成群。成鸟则养得膘肥体壮，为长期迁徙做足了准备。历史资料常常将聚群描述为规模巨大，几百只聚群并不稀罕。现在，我们的研究团队如果能看到三十或四十个聚集成群，就已经惊喜不已了。

大鸨东方亚种的种群数量处于历史低位，来自亚洲各地的专家正在起草一项新的《保护亚洲大鸨行动计划》，并估计只剩下1300至2200只。该亚种与指名亚种的不同之处不仅在于其羽毛，还在于其遗传学。我们的研究发现，两个亚种之间的遗传分化程度与这些亚种是不同物种的主张是一致的。

蒙古、中国和俄罗斯都有东方大鸨赖以生存的栖息地。大鸨的生活史将这三个国家联合在一起，因此这些国家必须为保护大鸨而共同努力，否则就有失去这种独特鸟类的风险。减少繁殖场所的干扰，以及减少农业活动对鸟类繁殖的影响，将有利于提

升大鸨的繁殖成功率。由于大鸨的自然繁殖率较低，人为干扰进一步使其降低，成鸟的损失对种群数量的恢复影响很大。当务之急是减少停歇地发生的偷猎和中毒事件，确保成鸟的存活率。与电线的碰撞，是另一个日益严重的威胁。由于大鸨独特的视觉系统和飞行特征，其特别容易与电线发



Great Bustard chicks are precocial and can walk alongside the mother within a day of hatching. The mother captures insects and passes them to her young by beak.

大鸨为早成鸟，出壳后1天就能跟着妈妈走动，而妈妈则捉虫子喂雏鸟

At the far north of the Eastern Great Bustard range, these birds inhabit grasslands and farmlands adjacent to the northern forest.

大鸨东方亚种分布的最北线，栖息于林缘的草原和农田





生致命的碰撞。重要的是要识别和改造容易引发碰撞的电线，在大鸨活动的重要地带尽量避免安装新的电线。如果大鸨迁徙范围内的人们，都能够保护这种濒危鸟类，我们相信东方大鸨将继续飞翔于天空，悠然展示着美丽的繁殖羽和绚丽的舞姿。

有关更多信息，请访问我们的项目网站<http://eurasianbustardalliance.org/zh/home-cn/>，您可以阅读我们的研究论文。我们很高兴听到您对大鸨的观察故事，以及这些鸟受到的威胁及其保护的新闻。

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In Collaboration with Wildlife

Science and Conservation Center of  
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TITLE: The summer life of a  
winter visitor

The Mongolian winter is long and harsh. In March, the arrival of the male Great Bustards is the first of spring. Though the weather is still cold – an average of 0°C during the day, and -15°C at night - male Great Bustards begin to gather in groups at their traditional breeding spots in Khovsgol Province in northern Mongolia. The birds come to the same few places, known as “leks”, every year. Some are in grassland, and some in farmland. At the very north of their range, the birds breed in clearings in the Russian forest.

While males practice their intricate display on the breeding grounds and compete with one another for dominance, the females begin their

journey north. After overwintering near the Yellow River and Wei River in Shaanxi Province, the females must fly 2000 km to return to the breeding ground. Though the Great Bustard is the heaviest living animal capable of flight, Great Bustards are powerful and swift in the flight. Using satellite telemetry, we have documented their flight at an average ground speed of 60-90 km/hour. We have recorded more rapid flights, up to a maximum of 120 km/hour, though this is likely with the assistance of wind.

Some females accomplish the migration within a week. However, more often the females take two months to complete the journey. They make multiple stops along the way. At stopovers, they feed on vegetation to fuel their flight and prepare for egg-laying. They tend to wait at stopovers

A trip to the breeding grounds with rural schoolchildren in northern Mongolia to observe the Great Bustard display through spotting scopes and binoculars

与蒙古北部乡村的小学生一同探访大鸨繁殖地，并通过望远镜观察大鸨







for warm days with supportive winds to continue their journey. At each new stopover, these birds are faced with new threats. We found that half of the Great Bustards we monitored by satellite telemetry died at migratory stopovers in Mongolia. The other half died at stopovers or wintering grounds in China. The causes of death include poaching, poisoning, and collision with powerlines.

It is not entirely understood how these birds navigate their long journey. Experimental releases of the Asian Houbara Bustard (*Chlamydotis macqueenii*), the closest relative to the Great Bustard, indicate that the birds have an innate, genetic tendency to migrate in a certain geographic direction. A similar phenomenon also appears to occur for the Great Bustard. Though the specific

path and stopovers of an individual bird vary from year to year, the direction of these populations breeding in Mongolia is always north-northwest.

During most of the year, male and female Great Bustards gather in separate flocks. We see them mix only on the breeding grounds. Upon arrival, some females choose a male and breed immediately. Other females feed and observe the male breeding displays for a period of time before making a choice. Mating is a quick affair. The female approaches the displaying male. His tail is lifted and wings twisted to reveal previously hidden bright white plumage, transforming him from a brown bird into a bright white ball of feathers. A sac in his throat is inflated to display delicate blue skin patches on his neck, and his moustache feathers are lifted to frame his eyes flirtatiously. She

At the far north of the Eastern Great Bustard range, these birds inhabit grasslands and farmlands adjacent to the northern forest.

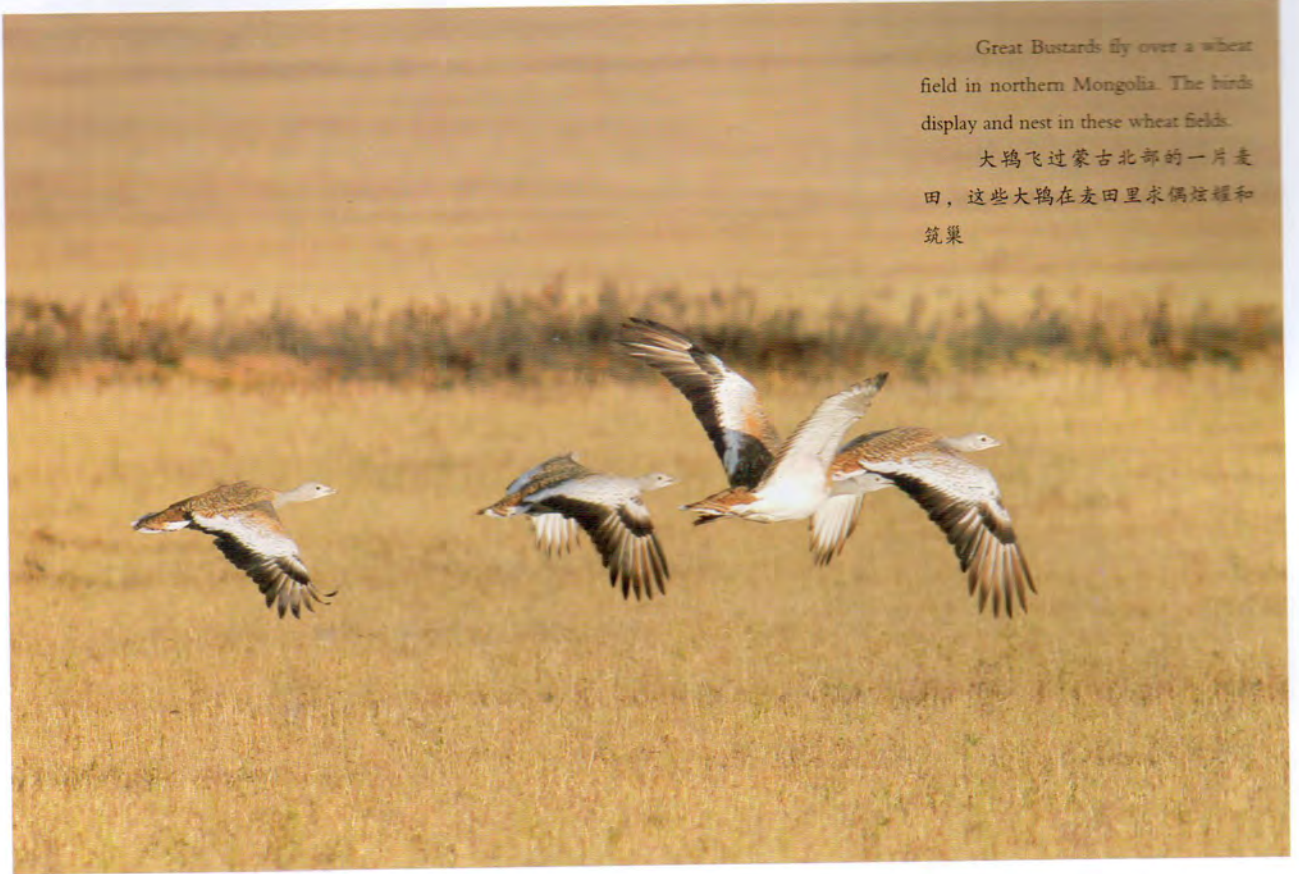
大鸨东方亚种分布的最北线，栖息于林缘的草原和农田



Snowstorms are possible any month of the year in northern Mongolia. This photo was taken on Great Bustard breeding grounds after a snowstorm in June.

在蒙古北部，每个月都可能发生雪暴，此图拍摄于6月暴风雪后的大鸨繁殖地





Great Bustards fly over a wheat field in northern Mongolia. The birds display and nest in these wheat fields.

大鸨飞过蒙古北部的一片麦田，这些大鸨在麦田里求偶炫耀和筑巢

appears hypnotized as he circles her repeatedly. After a brief copulation, she ruffles her feathers and quickly walks away. Unless she loses her clutch, she will not visit the male again.

Here in northern Mongolia, some females nest in an active wheat field or a field left fallow for the season. Other females will nest in grassland close to the forest edge. The nest is a simple scrape in the ground. The female incubates two or three eggs for almost four weeks. Corvids and canids are avid consumers of Great Bustard eggs and young. Mother Great Bustards are quiet and cautious. They creep away from the nest only once a day to feed.

Even in the best conditions, the reproductive rate of the Great Bustard is low. Human activities lower the number of successful clutches even

further. Human disturbance can scare the mother from the nest, and her escape flight will alert predators to the location of her nest. Fortunately for the bustards, at this time of year people do not occupy the valleys the birds breed in. These nomadic communities migrate to summer pastures with their livestock. However, a threat still exists in the form of work at agricultural fields. People visit the valley to plow and plant the fields, and later, to harvest the crops. Great Bustard eggs and chicks within the fields can be crushed by agricultural machinery.

The farmers of this valley do not use pesticides. Great Bustards perform the ecological service of cleaning the valley of grasshoppers and beetles. Chicks grow quickly using this protein-rich food source. By fall, they walk

alongside their mothers and join flocks gathering at migratory staging points. The adults have fattened in preparation for their long migration. Historical sources describe this bird as "multitudinous", with autumn flocks that contained hundreds of Great Bustards. Now, our research team is excited to see just thirty or forty Great Bustards gathered together.

The population of the eastern subspecies of Great Bustard (*Otis tardadybowskii*) appears to be at an historic low. Experts from across Asia are drafting a new Action Plan for Conservation of the Great Bustard in Asia, and estimate that only 1300-2200 individuals of this taxon remain. This subspecies differs from the western subspecies not only in its plumage, but also its genetics. Our studies



have found that the degree of genetic differentiation between the eastern and western subspecies is consistent with the proposition that these are different species.

Together, Mongolia, China, and Russia are shared stewards of the Eastern Great Bustard. Because the bird's annual cycle unites these three countries, these countries must work together for its conservation or risk losing this unique bird. This will require improving conditions for successful reproduction by reducing disturbances at breeding sites and ensuring that agricultural practices there are compatible with the birds' reproduction. Because the reproductive rate of the Great Bustard is naturally low and further lowered by human actions, loss of adult birds has a large impact on chances for population recovery. It is imperative to reduce adult mortality due

to poaching and poisoning at migratory stopovers. Collisions with power lines are a growing threat. Because of their visual system and the mechanics of their flight, bustards are especially vulnerable to fatal collisions with power lines. It is important to identify and modify sections of power lines that are responsible for collisions, and avoid installation of new power lines at sites important to Great Bustards. If care is taken by people across its migratory range, the Eastern Great Bustard can continue to perform its remarkable flights and intricate breeding displays.

For additional information, please see our project website at <http://eurasianbustardalliance.org/zh/home-cn/>, where you can access our research papers. We would be glad to hear about your observations of Great Bustards, and news about threats to these birds and their conservation.



Our field team explores different areas of Mongolia to search for remaining populations of Great Bustard.

走访蒙古不同的大鸨繁殖地，调查大鸨

This picture of a male Eastern Great Bustard in northern Mongolia shows the wide grey band on the wing. In Western Great Bustards, these grey feathers are replaced by red feathers with black lines. This is a major plumage difference between the subspecies

蒙古北部的一只雄性大鸨展示翅膀上宽大的灰色条纹，而对于大鸨指名亚种，这些灰色的羽毛被红色夹杂黑线的羽毛代替。这是两个大鸨亚种最显著的羽色差异。

