



*Dapoli Education Society's*

# DAPOLI URBAN BANK SENIOR SCIENCE COLLEGE, DAPOLI

# Eureka

*E-info letter*

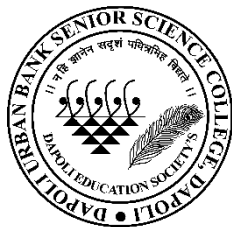
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Sign /-

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(The editor and publisher may not agree with the views expressed in articles.)

# Why species become endangered?

## What is an Endangered Species?

An endangered species is an animal or plant that is in danger of becoming extinct; meaning it would no longer be alive on our planet, Earth. All animals need habitat - consisting of food, clean water, shelter and living space - to survive. Habitat loss is the number one reason why a species become endangered. Other reasons why a species may become endangered include competition with introduced species, pollution, disease and animal trade. But remember, endangered means there is still time!

## Endangered Means, there is Still Time-

Endangered species are like fire alarms. They tell us about problems in our home we call Earth. If we listen to their alarm calls, they could help us improve our lives and the health of our planet.

## Extinct

**A species of plant or animal that is no longer living.**

### Now Extinct



*Dionaea muscipula*

## Threatened

A species is likely to become endangered if it is not protected

## Ways That Species Become Endangered?

- Gradual loss in Habitat
- Unregulated or illegal killing or collection
- Pesticides, pollution
- Competition with other species
- Disease
- Predator
- Rarity
- Inbreeding

When the species have a limited geographical range. Very limited or small population of less than 50 adult individuals.

Whether the population has decreased or will decrease by more than 80% for the last three generations or 10 years.

If the population is less than 250 individuals and is continuously declining at 25% for the last one generation or three years.

There is a high possibility of extinction in the wild. Indian elephant, Bengal tiger, Indian lion, Indian Rhino, Gaur, lion tailed macaque, Tibetan Antelope, Ganga river dolphin, the Nilgiri Tahr, snow leopard, dhole, black buck, great Indian bustard, forest owlet, white – winged duck and many more are the most endangered animals in India.

### **Endangered-Means There's Still Time-**

A threatened species is just a step behind, and may soon become endangered if we don't help.



Royal Bengal Tiger

### **References-**

Endangered Plants and Animals - R.K.Trivedi

*Article by*

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# Why Does Salting Roads Make Them Safer?



When snow starts hitting the ground, so does a second white crystal: rock salt. If you live in a region where winter weather is a regular hazard, you are likely used to pouring salt on your sidewalks or watching trucks douse the streets in it. But how does it work? And how much salt do humans dump onto our planet's surface? The second question is easier to answer: a lot. We covered streets and sidewalks with nearly 23 million metric tons of salt across the U.S. in 2018 alone. Salt doesn't directly melt ice, nor does it make snow simply disappear. Instead it makes water less likely to freeze in a phenomenon called freezing point depression. "It basically disrupts the crystal structure that forms in the freezing of the ice," says Julie Pollock, a chemist at the University of Richmond. This power comes from the way salt dissolves in water and breaks down into ions: in the case of simple rock salt, which is a rawer, less pure version of table salt, each molecule splits into one ion each of sodium and chloride. Normally, when water freezes into ice, its molecules line up to form a stable, orderly hexagonal structure. Salt ions interfere with that alignment, however, and temperatures must drop lower to overcome that interference and for freezing to occur. But if salt needs to interact with liquid water, how does it do anything when temperatures are stubbornly below freezing, and water should already be in the form of ice? That's where cars help clear their own way by creating friction and, in turn, heat, Pollock says. "The friction allows for the ice that has already frozen to melt a little bit,

and it makes that sort of slushy material," she says, which the salt then dissolves in. "That slushy material then doesn't freeze as easily as just water by itself would." Beyond rock salt's ability to clear icy streets, it can also be destructive. Chloride ions can corrode vehicles and infrastructure. Increasing chloride concentrations in North American lakes could begin to disrupt local ecologies and interfere with sources of drinking water. "Once road salt gets into the water, it's very difficult to remove it," says Chan Lan Chun, an environmental engineer at the University of Minnesota Duluth. "Salt itself is benign—it's not like a harmful or a hazardous chemical," she adds. But because the ions salt dissolves into are strongly attracted to water, it can take decades for salt pollution to flush out of an ecosystem. "Once it gets into the water, it doesn't go away." Using rock salt as a brine, or already mixed with water, can reduce the amount needed to keep roads safe, as can using careful calculations to determine how much salt is truly necessary given conditions on the ground.

Reference:

<https://www.scientificamerican.com/article/why-does-salting-roads-make-them-safer/>

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# The Growing Importance of Cost Accounting for Hospital



Recently, calls for hospitals to be more transparent in their pricing have increased. Policymakers and health care professionals have focused a great deal of attention on finding ways to present price and quality information to consumers in an accessible and comprehensible manner, so that the consumer can make better informed decisions. Hospitals' efforts to prepare for price transparency have focused on developing systems and processes required to calculate patient and insurance-benefit-specific prices, communicating these prices to patients, and making arrangements to collect cost sharing due from patients (American Hospital Association, 2014). Ultimately, the hope is that value (price and quality) will become the basis of competition, and hospitals will be incentivized to reduce their prices by cutting their underlying costs

## Cost accounting methods

Cost accounting is the process of estimating and classifying costs incurred by an organization. These costs can be analysed at the organizational or departmental level, but Gapenski and Reiter have noted that "the holy grail of cost estimation is costing at the service or individual patient level"

**Traditional Costing** is a cost accounting methodology that allocates organizational

overhead to a specific output based on a predetermined cost driver or by using a predetermined percentage.

**Activity-Based Costing** is a costing approach developed by Kaplan in the mid-1980s. Activity based costing is widely used in the preparation of budgets as it serves as a planning mechanism that shows the relationship between goal achievement and resource intensity. Activity based costing takes a rational approach to product and service costing, since it begins with an effort to identify the fundamental activities and resources involved in producing an output

**Time-Driven Activity Based Costing (TDABC)** is a managerial accounting approach introduced in 2004 by Kaplan and Anderson. Time-driven activity based costing is an attempt to overcome some of the weaknesses associated with ABC. TDABC differs from traditional ABC, in that time is used as the primary cost driver. The assumption underlying the TDABC method is that most resources (i.e. manpower, equipment, and facilities) have capacities that can be measured in terms of time (Namazi, 2009).

**Performance-Focused Activity Based Costing (PFABC)** is a third iteration of ABC. PFABC is a hybrid ABC method that

attempts to overcome some of the weaknesses associated with TDABC and ABC. PFABC attempts to extend the value of this managerial costing system as a means to examine organizational performance.

**Ratio of cost to charges (RCCs)** is a costing method specific to the health care industry. Hospitals participating in the Medicare program are required to file annual Medicare Cost Reports with the Centers for Medicare and Medicaid Services (CMS). The cost report uses traditional costing methods to allocate overhead costs to clinical departments, allowing hospitals to estimate the full cost of each revenue-producing department.

In the short term, barriers to price transparency include finding ways to communicate complex information on prices, provider quality, and financial liability to consumers in ways that they can understand. If these efforts meet with even partial success, hospitals are likely to encounter new challenges. Patient volumes and revenues may increasingly be dictated by the decisions of individual patients shopping for low-cost services and as a result, providers will see increasing pressure to set prices at levels that reflect the costs of providing care.

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## Intrusion Detection System (IDS)

A system called an intrusion detection system (IDS) observes network traffic for malicious transactions and sends immediate alerts when it is observed. It is software that checks a network or system for malicious activities or policy violations. Each illegal activity or violation is often recorded either centrally using a SIEM system or notified to an administration. IDS monitors a network or system for malicious activity and protects a computer network from unauthorized access from users, including perhaps insiders. The intrusion detector learning task is to build a predictive model (i.e. a classifier) capable of distinguishing between ‘bad connections’ (intrusion/attacks) and ‘good (normal) connections’.

### How does IDS work?

- An IDS (Intrusion Detection System) monitors the traffic on a computer network to detect any suspicious activity.
- It analyzes the data flowing through the network to look for patterns and signs of abnormal behavior.
- The IDS compares the network activity to a set of predefined rules and patterns to identify any activity that might indicate an attack or intrusion.
- If the IDS detects something that matches one of these rules or patterns, it sends an alert to the system administrator.
- The system administrator can then investigate the alert and take action to prevent any damage or further intrusion.

### Classification of Intrusion Detection System

*IDS are classified into 5 types:*

- **Network Intrusion Detection System (NIDS):**  
Network intrusion detection systems (NIDS) are set up at a planned point within the network to examine traffic from all devices on the network. It performs an observation of passing traffic on the entire subnet and matches the traffic that is passed on the subnets to the collection of known attacks. Once an attack is identified or abnormal behavior is observed, the alert can be sent to the administrator. An example of a NIDS is installing it on the subnet where firewalls are located in order to see if someone is trying to crack the firewall.

**Host Intrusion Detection System (HIDS):** Host intrusion detection systems (HIDS) run on independent hosts or devices on the network. A HIDS monitors the incoming and outgoing packets from the device only and will alert the administrator if suspicious or malicious activity is detected. It takes a snapshot of existing system files and compares it with the previous snapshot. If the analytical system files were edited or deleted, an alert is sent to the administrator to investigate. An example of HIDS usage can be seen on mission-critical machines, which are not expected to change their layout.



## **Protocol-based Intrusion Detection System (PIDS):**

Protocol-based intrusion detection system (PIDS) comprises a system or agent that would consistently reside at the front end of a server, controlling and interpreting the protocol between a user/device and the server. It is trying to secure the web server by regularly monitoring the HTTPS protocol stream and accepting the related HTTP protocol. As HTTPS is unencrypted and before instantly entering its web presentation layer then this system would need to reside in this interface, between to use the HTTPS.

## **Application Protocol-based Intrusion Detection System (APIDS):**

An application Protocol-based Intrusion Detection System (APIDS) is a system or agent that generally resides within a group of servers. It identifies the intrusions by monitoring and interpreting the communication on application-specific protocols. For example, this would monitor the SQL protocol explicitly to the middleware as it transacts with the database in the web server.

**Hybrid Intrusion Detection System:** Hybrid intrusion detection system is made by the combination of two or more approaches to the intrusion detection system. In the hybrid intrusion detection system, the host agent or system data is combined with network information to develop a complete view of the network system. The hybrid intrusion detection system is more effective in comparison to the other intrusion detection system. Prelude is an example of Hybrid IDS.

### **Benefits of IDS**

**Detects malicious activity:** IDS can detect any suspicious activities and alert the system administrator before any significant damage is done.

### **Improves network performance:**

IDS can identify any performance issues on the network, which can be addressed to improve network performance.

**Compliance requirements:** IDS can help in meeting compliance requirements by monitoring network activity and generating reports.

**Provides insights:** IDS generates valuable insights into network traffic, which can be used to identify any weaknesses and improve network security.

### **Detection Method of IDS**

1. **Signature-based Method:** Signature-based IDS detects the attacks on the basis of the specific patterns such as the number of bytes or a number of 1s or the number of 0s in the network traffic. It also detects on the basis of the already known malicious instruction sequence that is used by the malware. The detected patterns in the IDS are known as signatures. Signature-based IDS can easily detect the attacks whose pattern (signature) already exists in the system but it is quite difficult to detect new malware attacks as their pattern (signature) is not known.

2. **Anomaly-based Method:** Anomaly-based IDS was introduced to detect unknown malware attacks as new malware is developed rapidly. In anomaly-based IDS there is the use of machine learning to create a trustful activity model and

anything coming is compared with that model and it is declared suspicious if it is not found in the model. The machine learning-based method has a better-generalized property in comparison to signature-based IDS as these models can be trained according to the applications and hardware configurations.

#### Comparison of IDS with Firewalls

IDS and firewall both are related to network security but an IDS differs from a firewall as a firewall looks outwardly for intrusions in order to stop them from happening. Firewalls restrict access between networks to prevent intrusion and if an attack is from inside the network it doesn't signal. An IDS describes a suspected intrusion once it has happened and then signals an alarm.

#### Conclusion:

Intrusion Detection System (IDS) is a powerful tool that can help businesses in detecting and prevent unauthorized access to their network. By analyzing network traffic patterns, IDS can identify any suspicious activities and alert the system administrator. IDS can be a valuable addition to any organization's security infrastructure, providing insights and improving network performance.

*Article by -*

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# Understanding Orphan Wells and Their Threat to Water Sources



Oil and gas wells that have been abandoned by their owners and left uncapped, known as orphan wells, have the potential to release hazardous substances into surface and groundwater supplies, which can harm the environment and public health. Old orphaned wells may have degraded well casing allowing oil, gas, or salty water to leak into freshwater aquifers and pollute them. Orphan wells have been a problem for many years in the oil and gas industry, and the number of such wells has been increasing since there are an estimated 2.6 million orphaned wells in the United States alone, with many more scattered around the world. Orphan wells can contaminate water sources through methane leakage since it is a potent greenhouse gas contributing to climate change. It can contaminate drinking water sources causing health problems such as headaches, dizziness, and nausea. Releasing benzene, a carcinogenic chemical that may cause cancer and other health issues, including anemia and immune system damage, is another way orphan wells can pollute water supplies. Toluene, ethyl benzene, and xylene are other dangerous substances that may seep from orphan wells and are all known to damage people's health.

Monitoring orphan wells is essential to avoid contaminated water supplies. For this purpose, traditionally, periodic physical

inspections, which can be costly and time-consuming, are now being replaced by advanced sensor technologies that offer new opportunities for monitoring orphan wells more efficiently and effectively. Sensor technologies provide several benefits over conventional monitoring techniques for orphan wells, including real-time leak detection that enables faster reaction times and more efficient mitigation measures and is affordable and straightforward to install and maintain. Additionally, sensors can be installed in dangerous or difficult-to-reach locations, eliminating the need for physical inspections and lowering the risk to people's health.

A recent study published in 2020 discusses the effects of orphaned wells on the Ohio River. Any contaminants entering Ohio make their way to the Mississippi River since it originates in Pittsburgh, Pennsylvania, and runs 981 miles through six states to Illinois before reaching the Mississippi River. The study found orphaned oil and gas wells to be the primary cause of pollution in the Ohio River since many companies when going out of business, leave behind thousands of orphaned and abandoned wells affecting over three million people who get drinking water from the Ohio River.

Despite these challenges, the use of sensor technologies to monitor orphan wells is a promising solution for detecting contamination

and preventing further environmental and health risks since, as the technology continues to advance and become more affordable, sensor-based monitoring systems will likely become more widespread and effective in detecting and mitigating the risks associated with orphan wells.

### Reference

- Alboiu, V., & Walker, T. R. (2019). Pollution, management, and mitigation of idle and orphaned oil and gas wells in Alberta, Canada. Environmental monitoring and assessment. doi.org/10.1007/s10661-019-7780-x
- Demetillo, A. T., Japitana, M. V., & Taboada, E. B. (2019). A system for monitoring water quality in a large aquatic area using wireless sensor network technology. Sustainable Environment Research. doi.org/10.1186/s42834-019-0009-4

*Article by -  
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# Geldamycin produced by bacteria

## *Streptomyces hygroscopicus*



### Introduction:-

Geldanamycin was originally discovered in the organism *streptomyces hygroscopicus*. It is a macrocyclic polyketide that is synthesized by a Type I Polyketides synthase. The genes *gelA*, *gelB*, and *gelC* encode for the polyketide synthase. The PKS is first loaded with 3-amino-5-hydroxybenzoic acid (AHBA). It then utilizes and methoxymalonyl-CoA to synthesize the precursor molecule Progeldanamycin. This precursor is subjected to several enzymatic and non-enzymatic tailoring steps to produce the active molecule Geldanamycin, which include hydroxylation, o-methylation, carbamoylation, and oxidation.

Geldanamycin is an antitumour antibiotic that inhibits the function of HsP90 (Heat Shock Protein 90) by binding to the unusual ADP/ATP-binding pocket of the protein. HSP90 client proteins play important roles in the regulation of the cell cycle, cell growth, cell survival, apoptosis, angiogenesis and oncogenesis.

### Production of Geldanamycin:-

The biosyntheses of geldanamycin analogues were reported to be involved in the assembly of 3-amino-5-hydroxybenzoic acid (AHBA) as a starter unit, following elongation with the acyl-Coenzyme A substrates malonyl-CoA, methylmalonyl-CoA, and 2-methoxymalonyl-ACP, the polyketide

intermediate undergoes intra-molecular lactamization *gdmF* to form progeldanamycin. The compound isolated in this study and previously reported herbimycin A, proposed that an *O*-methylation step exist after the formation of polyketide backbone which may lead to identify a new *O*-methyltransferase. To prove this hypothesis, mutant lines could be established for screening of this 11-*O*-methyltransferase.

### Uses:-

Geldanamycin inhibits the ATPase activity of chaperone heat shock protein 90 (Hsp90), which maintains conformation, stability, and function of oncogenic protein kinases involved in signal transduction cascades leading to proliferation and progression of cell cycle and apoptosis

Geldanamycin (GA), a benzoquinone ansamycin antibiotic has been shown in vitro to possess anti-plasmodial activity. Pharmacological activity of this drug is attributed to its ability to inhibit PfHSP90. The parasite growth arrest has been shown to be due to drug-induced blockage of the transition from ring to trophozoite stage. To further evaluate the consequences of this pharmacodynamics feature, the anti-malarial activity of GA analogs with enhanced drug properties in a *Plasmodium*-infected animal model have

been evaluated for their capacity to induce clearance of the parasite.

Geldanamycin, a benzoquinone ansamycin, protected against neuronal injury induced by oxygen-glucose deprivation (OGD)/zVAD treatment in cultured primary neurons. More importantly, Geldanamycin decreases RIP1 protein level in a time and concentration-dependent manner. Geldanamycin also decreases the Hsp90 protein level, which causes instability of RIP1 protein, resulting in decreased RIP1 protein level but not RIP1 mRNA level after Geldanamycin treatment. Geldanamycin is identified as the first natural product inhibitor of Hsp90 that binds to the N-terminal ATPase domain of Hsp90 to inhibit its chaperone function, and significantly induces tumour cell death via an apoptotic mechanism.

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- <https://pubmed.ncbi.nlm.nih.gov/5459626/>.
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- <https://pubmed.ncbi.nlm.nih.gov/19850405/>.

***Article by:***  
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# Inter University Centre for Astronomy and Astro-Physics (IUCAA)

Inter-University Centre for Astronomy and Astrophysics (IUCAA) is an autonomous institution set up by the University Grants Commission (UGC) of India to promote the nucleation and growth of active groups in astronomy and astrophysics at Indian universities. IUCAA aims to be a centre of excellence within the university sector for teaching, research and development in astronomy and astrophysics

## Organization:

IUCAA's activities fall under two broad programmes: core academic programmes and visitor academic programmes. Core academic programmes include basic research, the PhD programme, advanced research workshops and schools, the giant metre-wave radio telescope and guest observer programmes. Visitor programme, refresher courses for teachers and helping the nucleation and growth of astronomy and astrophysics at Indian university.

## University Programmes IN IUCAA

### A. Associateship Programme

- One important component of IUCAA's academic activities is the Associateship Programme, under which a faculty member of an Indian university or a post-graduate department in a college can visit IUCAA for periods of short and long durations over a span of three years to develop his or her interest and expertise in astronomy and astrophysics.

- The Associateship Programme has been designed to promote mobility and, to this end, the travel and local living expenses of an associate for these visits will be borne by IUCAA as per its rules. The associate will continue to carry out the existing commitments at his or her parent organisation. However, since IUCAA has been created by the UGC as a field station

for these activities, it is expected that those visiting IUCAA under this programme will be treated as on duty by their respective organisations.

- Applications are invited for associateships for a tenure of three years, starting from August 1, every year.
- The selected candidates are usually informed by the end of July every year.

### B. Refresher Course in Astronomy and Astrophysics

- IUCAA conducts a refresher course in Astronomy and Astrophysics for teachers at Indian universities and colleges for five weeks during the third week of May to the third week of June in every odd year (i.e., in 2017, 2019, 2021, 2023 and so on). The topics generally include observational and theoretical aspects of astronomy and state-of-the-art methods of data analysis. During the course there will be an emphasis on the use of computers for accessing and analyzing archival data.



IUCAA Ph.D. Programme IN IUCAA

The intake of students into IUCAA's Ph.D. Programme is through

### 1. IUCAA National Admission Test (INAT)

INAT is conducted by Inter-University Centre for Astronomy and Astrophysics, Pune. This test and the subsequent interviews are generally conducted in the first week of January every year at IUCAA Pune.

## 2. Joint Entrance Screening Test (JEST)

This test is usually conducted at IUCAA, Pune, and at other centres in India on the third Sunday of February every year. For more details about JEST, test syllabus, sample question papers.

## 3. CSIR-UGC NET for JRF (Physics)

Only those who have qualified for the Junior Research Fellowship (JRF) in the previous two years are eligible to apply. Those who have qualified for only Lecturership are NOT ELIGIBLE.

## Joint SPPU - IUCAA M.Sc. Physics (Astrophysics) Programme

The Inter-University Centre for Astronomy and Astrophysics (IUCAA) and the Savitribai Phule Pune University (SPPU) announce a joint M.Sc. programme in Physics (Astrophysics), having recognized a growing need for broadly trained students to work on large astronomy/astrophysics projects such as LIGO-India, TMT, SKA, space-based astronomy missions, etc. within the country. This programme is envisaged to be a flagship Masters' programme to prepare students to undertake research in contemporary astronomy and astrophysics. The M.Sc. programme will provide the requisite training in physics and astrophysics through theoretical physics and astrophysics courses, experimental, observational, and computational work, and projects on current research topics.

## IUCAA Student Projects

IUCAA offers the opportunity for local students in the Pune area to work on projects of varying durations. Interested students are invited to contact faculty

directly. Students outside Pune are encouraged to apply for the [summer school programme](#) or the [vacation students' programme](#).

Limited number of students studying in B.Sc. / B.E. / B.Tech. / M.Sc. / M.E. / M.Tech. are admitted in IUCAA to do their projects in Astronomy and Astrophysics or related topics. These students should have thorough basics in Physics and Mathematics. Once they are admitted, they will be supervised and guided by one of the IUCAA faculty members. They may be asked to attend lectures and complete a few assignments. These projects may be for a short period of less than three months or long period of more than three months, but less than one year.



The students have to be recommended by their supervisor/head of the department. They have to apply in plain papers, giving their complete curriculum vitae, and a short write up regarding their interest in the project. For outstation and local candidates, the support (like travel, local hospitality, honorarium, etc.) to be given by IUCAA is to be decided. At the end of the project, the students have to prepare a report and submit it to the IUCAA supervisor, which will be evaluated, and the outcome will be informed to their respective supervisor / head of the department.

## History of IUCAA

IUCAA as a research institute, is looked upon by all as a place where Science is applied in an exciting field. SciPoP is an



uniquely started effort towards increasing public awareness and understanding of Science & Astronomy. It is aimed at making people aware of the importance of Science education as well as to getting students genuinely interested in Science and motivated towards taking up a [research career](#) towards its advancement.

Science plays an important role in everyone's life. SciPOP was set up over two decades ago with the vision of Prof. Jayant V. Narlikar to make the common man aware of this. Initially Late Prof. Narayan. C. Rana and Mr. Arvind Paranjpye actively looked after the programme. Under the supervision of Prof. Somak Raychoudhary the Science Park was added to the resources.

In 2004, we got our own campus - the Muktangan Vindyan Shodhika (MVS) - when the Pulastya building was built with a generous donation from Smt. Sunitabai Deshpande.

Scipop now has local, national and international repute in a wide variety of roles and activities in science popularisation, in addition to the regular outreach of the institute's Astronomy and Astrophysics research.

#### Reference:

- <https://www.iucaa.in>
- <https://inat.iucaa.in>

*Article by:*  
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*Department of Physics*

## Zorse



### Zorse Scientific Classification

<b>Kingdom</b>	: Animalia
<b>Phylum</b>	: Chordata
<b>Class</b>	: Mammalia
<b>Order</b>	: Perissodactyla
<b>Family</b>	: Equidae
<b>Genus</b>	: Equus

**Scientific Name:** Equus zebra x Equus caballus

### Introduction

The Zorse is one of a number of equine hybrids that are known as Zebroids, which is the name given to an equine hybrid that has Zebra ancestry. The Zorse is the result of cross-breeding a generally male Zebra (stallion) with a female Horse (mare) to produce an animal that looks more like a Horse than a Zebra but has stripes. The Zebra part also gives the Zorse resistance to certain pests and diseases that normally affect both Horses and Donkeys, meaning that they are not only sturdy but also very hardy animals. Due to the fact that there are not only three different sub-species of Zebra but also nearly 300 different breeds of domestic Horse, the Zorse can vary quite dramatically, particularly in size and color, depending on its parents.

### Characteristics:

The Zorse is very Horse-like in appearance since it inherits its shape, size, color and temperament from its mother. One of the Zorse's most notable features is the dark stripes that are boldest on its legs and rear, along with also commonly being found on the rest of the body, neck and head. The Zorse is an animal that tends to have short, coarse fur that can range in color from tan to brown to black, with a darker mane and tail (although the exact characteristics of the Zorse are dependent on the breed of the

female Horse). Zorses have a large head with a long muzzle, pricked-up ears and large, dark eyes with long eyelashes that help to stop things from getting into their eyes.

### **Distribution and Habitat**

There are three different sub-species of Zebra that are found in eastern and southern Africa on the vast open grasslands and savannah, but the incredibly rare wild horse is historically native to parts of Europe and Asia meaning that the two species would not come together naturally in the wild. In parts of Africa though where human settlements are either close to or intrude on the Zebra's natural habitat, it is possible for a semi-wild Zorse to occur with the mating of a wild Zebra with a domestic horse.

### **Behaviour and Lifestyle**

In the wild, both Zebras and Horses roam throughout their natural environment in herds that can contain anywhere from two to more than two hundred individuals, making Zorses relatively sociable animals that prefer to live with other equines. Their temperaments however, are generally similar to those of their mother, including their strong flight response which is heightened by their Zebra side. Zorses are strong and muscular animals that spend the majority of their lives grazing, and along with the fact that they have better night vision than human, they are known to have almost 360 degree vision with the exception of a blind spot in front of their nose and directly behind them.

### **Interesting Facts**

The Zorse is a cross between a Zebra stallion and a domestic mare, but it is also possible to use a Zebra mare and a domestic stallion. Zebras and Horses are often crossbred to create Zorses that are used as trekking animals to transport both people and goods up and down the mountains. As with their Zebra father, the pattern of the Zorse's bold stripes is unique to each animal (much like the fingerprint of Humans), meaning that they can be easily distinguished from one another, and if they were found naturally in the wild it could give them some form of camouflage into their surrounding environment.

### **References**

- <https://a-z-animals.com/animals/zorse/>

*Article by*

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