



2020 >>

RESEARCH YEAR IN REVIEW

Learn about the research that The Donkey Sanctuary carried out and supported in 2020, and the difference this made to the lives of donkeys and mules



**THE DONKEY
SANCTUARY**

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FOREWORD

The Donkey Sanctuary's mission is to transform the quality of life for donkeys, mules and people worldwide through greater understanding, collaboration and support, and by promoting lasting, mutually life-enhancing relationships.

While this is always at the very forefront of our work, never has it felt so important as right now, as people around the world face the difficulties thrust upon them from the global coronavirus outbreak. No-one could have predicted the chaos, changes and challenges that 2020 would bring, and I believe that the year will be remembered as one of the most challenging in recent memory.

Hundreds of millions of people around the world rely on donkeys and mules for their livelihoods, but we must also remember that working donkeys and mules rely on their owners' economic prosperity for their own welfare and survival. Being able to earn a living

enables owners to feed, water and care for their animals. The global coronavirus pandemic left people across the world struggling to juggle the demands of children and work, incomes fell as economies slowed, and millions lost their jobs and their livelihoods.

The Donkey Sanctuary was proud to be able to offer help to some of these people and their families through the launch of the Covid-19 Emergency Response Fund, which was designed to help the most vulnerable people have access to the support they need as well as protecting the welfare of donkeys and mules who were working harder than ever.

We also supported the Petplan Charitable Trust to create the Covid-19 Equine Rescues Emergency Fund, designed to help smaller welfare organisations continue their vital work during economic uncertainty.

RESEARCH IN 2020

Research at The Donkey Sanctuary focuses solely on improving the health and welfare of donkeys and mules worldwide. All our research is non-invasive (nothing we do will ever cause pain or distress to the animals involved) and aims to inform us of ways we can improve the lives of donkeys and mules.

Our research focus is broad and dynamic, and includes research focused on veterinary, welfare, socio-economic status of donkeys and their owners, the importance of donkeys and mules to ecosystems and conservation, free-roaming and feral donkeys, farming, production, dental health, harness and draft power, behaviour and wellbeing, physical health, physiology and morphology, and their value to communities in low- and middle-income countries.


2020 brought obvious challenges in terms of restricting travel across both the UK and the world, which put an immediate stop to all planned fieldwork activities for the year.

Despite these challenging circumstances, our research teams continued to work as hard as ever, and used the restrictions to continue all the elements of our research programmes that they possibly could. 2020 was an incredibly successful year for all our research outputs, and we are delighted to share our 2020 research successes with you here.

There are too many projects to list, but we have included as many as possible, present the research highlights, and demonstrate what this means for donkeys and mules around the world.

Dr Zoe Raw
Head of Global Research





“The Donkey Sanctuary is the leading global organisation working to improve donkey and mule health worldwide”

RESEARCH IMPACT

Our research work is designed to create impact and support positive change for donkeys and mules around the world. In many cases, our research work adds to the portfolio of evidence needed to create law or policy change for donkeys and mules, and helps inform care and management practices at our sanctuaries, allowing us to continually ensure that we are providing the best possible care to our resident donkeys and mules.

For example, our veterinary research work has improved the way we understand and treat diseases in our donkeys and mules, which supports quicker diagnosis and treatment where necessary. Our research work around nutrition and gut microbiomes has helped us refine the way we feed our animals, ensuring they get optimum nutrition for their health and welfare. Our international research has contributed valuable evidence to our portfolio, to help us advocate for better welfare for working equids around the world. It also supports our global campaigns for welfare and helps us to keep fighting to stop the global trade in donkey skins.

The development of our new Equid Assessment, Research and Scoping (EARS) tool has revolutionised the way we assess donkey and mule welfare around the world, and provides equine welfare charities with a consistent, reliable and scientifically validated method for collecting and comparing equine welfare data.

RESEARCH AT THE DONKEY SANCTUARY



RESEARCH IS IMPORTANT

Donkeys are a unique species of equine but unfortunately are often treated as 'small horses'. However, donkeys and horses are two completely distinct species, with different evolutionary history and differing care and welfare needs. For instance, donkeys are descended from the African Wild Ass, and evolved to survive in semi-arid, mountainous environments with sparse food sources and intermittent access to water, whereas horses evolved on the lush, open grasslands of central Asia and Europe, in much colder climates with abundant food and water sources. Consequently, there are vast differences in the health and welfare needs of horses and donkeys. Research helps to investigate and provide evidence for these differences, to increase awareness and understanding that donkeys are a distinct species, with very different needs to horses, thereby helping to improve their care, husbandry and wellbeing.



DEVELOPING AN EVIDENCE BASE

The Donkey Sanctuary strives to base all our programmes and operations on the latest and best evidence available. We lead the way in developing and conducting the latest donkey and mule focused research, and we publish all our work in peer-reviewed, scientific journals to share our results and to educate others about donkeys and mules. We are centred around developing robust and relevant scientific evidence, to use this in evidence-based decision making, to improve not only the lives of donkeys and mules, but also the lives of those who depend on them around the world. Our research programmes deliver evidence which can help shape global animal welfare and management policies, and which can be used to lobby government, commercial enterprises, the general public and other NGOs to create change for donkeys, mules and people. Part of this also includes gathering baseline data for populations of donkeys and mules around the world, so that we can implement continual and detailed monitoring of their health and welfare status.



EXPERT COLLABORATION

The Donkey Sanctuary is the leading global organisation working to improve donkey and mule health worldwide. We are fortunate enough to have some of the world's most knowledgeable donkey experts as part of our organisation, and have an unparalleled level of collective expertise and experience. Nonetheless, we also seek to partner with leading academics at universities, and other specialists in Government departments, NGOs or other external organisations. Through collaboration with global experts, we are able to increase the reach and impact of our work, and ensure the outcomes create the most positive change for donkeys, mules and people. We are also proud to actively support and foster the next generation of donkey and mule experts, through supporting PhD level research to answer specific questions about donkey and mule health and welfare.



EMPOWERING LOCAL EXPERTISE

The Donkey Sanctuary works with people from across the world with partnerships established in Africa, Asia, Europe and the Americas. We often seek to partner and collaborate with local researchers, since they are able to offer unique and valuable insights into the ways that donkeys and mules are used and treated in their country. Harnessing local knowledge is a central theme to all of our global research, which helps our work to remain authentic to the context. Our approach here includes not only collaborating with leading academic experts across the globe, but also working closely with community-based expertise, for example Community-based Animal Health Workers (CAHWs), local equid users, owners, paravets and other community members.

PUBLICATION

We aim to publish all of our research work in peer-reviewed, scientific journals. We will always strive to publish our work with open-access, so that it is freely available to anyone interested. This ensures that anyone with an interest in donkey or mule health and welfare is not prevented from learning more due to economic constraints.

KEY RESEARCH PROJECTS

The next few pages highlight some of the key pieces of research we carried out or collaborated on, completed and published during 2020. A full list of all our 2020 publications can be found at the end of this booklet.



BEHAVIOUR AND WELFARE

“ The practical application of the science of behaviour has been the focus of the behaviour team during 2020. We were researching the implications of the organisation’s behaviour culture on the environment, handling and training of our donkeys and mules, combined with exploring the effects of the language we use to describe donkey behaviour and how that impacts the treatment and care of donkeys and mules. Working to develop practical enrichment activities that can form the basis of future enrichment programs and research. One key area of focus has been the assessment of donkey behaviour and temperament for the Donkey Guardian scheme and the application of a consistent program across all our farms and centres which will result in a better selection process and more suitably placed donkeys.

Ben Hart - Senior Lead - Behaviour & Human Behaviour Change ”

THE EQUID ASSESSMENT, RESEARCH AND SCOPING (EARS) TOOL

We developed a new equid welfare assessment and monitoring tool, to enable the complete assessment of the welfare of equids in a variety of different situations, from UK sanctuary settings to working environments in low and middle-income countries. The EARS tool was built upon existing validated techniques, and extended them using a new framework. The tool offers us flexibility to assess equid welfare across multiple different environments in which we work, yet offers a standardised dataset, enabling comparison, monitoring and evaluation.

QUALITATIVE BEHAVIOUR ASSESSMENT (QBA) TO ASSESS RESIDENT DONKEY AND MULE WELLBEING

QBA is a scientific method for assessing the emotional experience of an animal or group of animals. It allows us to understand more about the donkey’s perspective of their current experiences: not only how they are behaving but what that means about how they are feeling; therefore recognising and recording the emotional state of the animal. We assessed the emotional wellbeing of all donkeys and mules in our care at sites owned by The Donkey Sanctuary. An improved understanding of the donkey’s experience and their emotional wellbeing, alongside their physical health, increases welfare through recognising how to increase positive experiences for donkeys. This work has helped us define best practice for donkey care and management for all donkeys, and to ensure we strive towards the highest possible standards of welfare in our resident herd.



USING THE EARS TOOL TO ASSESS RESIDENT HEALTH AND WELFARE

We used our newly developed EARS tool to assess, understand and monitor the welfare of all donkeys and mules residing at a site owned by The Donkey Sanctuary in Great Britain. This helped us to gain a deeper insight into the health and welfare status of our donkeys and mules, and developed a baseline for monitoring health and welfare. Understanding the overall health and welfare of the donkeys and mules in our care allows for improved welfare, and provides insights into how differing management practices may influence the health and welfare of different groups. The results have helped us develop best practice for individuals, and different groups according to their needs.

ASSESSING PAIN IN DONKEYS AND MULES

Donkeys and mules are believed to be adept at hiding overt signs of being in pain, and therefore pain symptoms may be missed. Valid pain assessment tools are crucial to identifying pain indicators in donkeys. If we are able to identify pain signals in donkeys, then we can provide earlier interventions to relieve pain and improve welfare. We tested whether both the Equine Utrecht University Scale for Donkey Composite Pain Assessment (EQUUS-DONKEY-COMPASS) and the Equine Utrecht University Scale for Donkey Facial Assessment of Pain (EQUUS-DONKEY-FAP) could be used to objectively assess different types of acute pain in donkeys. We found that both tools were effective for objectively identifying pain in donkeys, and we can now incorporate these tools into our welfare and health management practices.

VETERINARY RESEARCH

SARCOID MANAGEMENT: AN EPIDEMIOLOGICAL AND MOLECULAR APPROACH

This was a multi-disciplinary project, which aimed to identify the risk factors for sarcoids and to identify specific 'molecular signatures' to aid in the management and treatment of sarcoids in donkeys. Sarcoids are common at The Donkey Sanctuary and more widely in all equids across the globe and significant time and resources are spent on assessing and treating them. They pose major welfare implications for many of the affected animals and challenges to our veterinary team. This project has helped to build on our current knowledge of how best to prevent and treat sarcoids and has provided a better understanding of the prognosis for donkeys and mules affected by them.



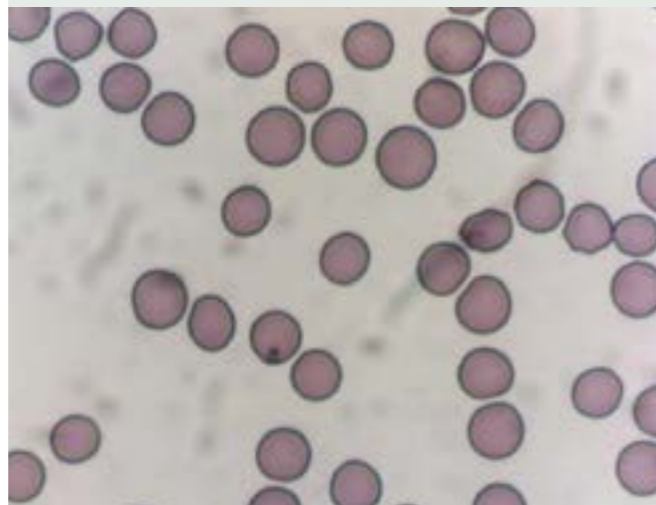
IDENTIFYING LAMINITIC RISK FACTORS IN DONKEYS

Improved understanding of risk factors for both acute and chronic laminitis will contribute towards improved management of donkeys, to reduce laminitic risk factors and improve welfare. This study identified risk factors associated with acute and chronic laminitis, which included a seasonal pattern with more cases occurring over the winter months. This work highlights the importance of managing diet and husbandry through the winter months.



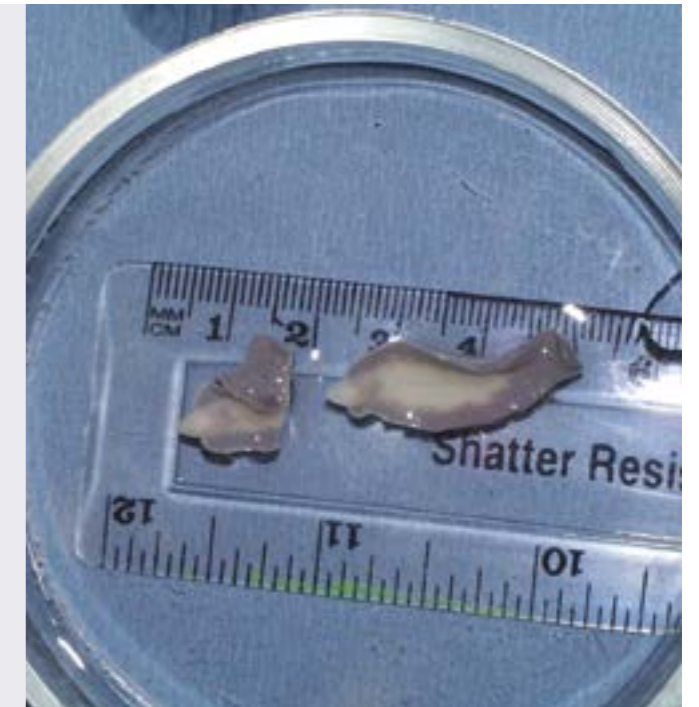
LIVER PROGNOSTIC INDICATORS

Our team worked to identify the key biochemical and haematological parameters that are linked to poor prognosis in cases of liver disease. This work will improve welfare through identification of the relevant parameters linked to poor prognosis in liver disease cases, ensuring appropriate treatment plans are identified for individuals, to ensure the best possible outcomes.



FASCIOLA HEPATICA (LIVER FLUKE) INFECTION IN A UK DONKEY CAUSING CLINICAL SIGNS

Liver fluke is often unrecognised in donkeys and mules around the world, including within the UK. It may be an emerging problem with climate change, as there is a trend towards wetter, milder weather, favouring the survival and development of the free-living stages of the liver fluke and its intermediate host, the water snail lymnaea. Detection of disease in donkeys requires expert diagnostic tests, and is important to initiate early treatment. Vets should consider liver fluke as a differential for liver disease in the donkey, and consider appropriate faecal sampling and testing and targeted treatment using the cascade system (in the UK). This work will help vets and owners become more aware of less common conditions, and encourage correct diagnosis and treatment.



CLINICAL AUDIT OF SURGERIES ON THE HOOF PERFORMED IN 2019

We perform numerous hoof surgeries each year, as we seek to provide the best and most rapid treatment to donkeys and mules in our resident herd. The majority of our surgeries are on keratoma-like lesions, and our success rate is comparable to data in horses. A review of our 2019 hoof surgeries highlighted that keratoma-like lesions (cause undefined) continue to require surgical removal, and that the method of surgery affects recovery and prognosis. Understanding the results of surgery allows us to see how we can improve, which ultimately drives improvements in standards.



FIRST RECORD OF BESNOITIOSIS CAUSED BY BESNOITIA BENNETTI IN DONKEYS FROM THE UK

Donkey besnoitiosis is an emerging disease in Europe and the UK. Although uncommon, it can be debilitating for the affected donkeys. This project reports the case of 20 donkeys infected by *Besnoitia*, despite none of the donkeys having lived outside the UK, with the exception of one donkey which originated from Ireland. Biopsies showed the presence of *Besnoitia bennetti*, an apicomplexan parasite that is considered exotic in the UK and found mainly in Africa. However, recent research shows that the condition is also found in the USA and rarely in Europe. This is the first report of the condition in the UK and raises important awareness of the condition to UK vets and animal health professionals.



MORPHOMETRIC CHARACTERISTICS OF THE SKULL IN HORSES AND DONKEYS

Horses and donkeys are often closely associated, but they are distinct species that differ from one another in many ways. We examined the head characteristics of deceased horses and donkeys and measured various structures of both the skull and the brain. We calculated various ratios of skull measurements to compare the different morphological characteristics of horses and donkeys. We found a larger forehead in donkeys compared to horses, a smaller olfactory bulb which was rotated further forward in donkeys than horses. Most interestingly, we found that the hair whorl on the forehead of horses almost always corresponded with the location of the olfactory bulbs, but in donkeys, the hair whorl was located much further down the nose. While it is unclear why these differences exist, it may relate to some of the differences in behaviour and physiology that have been described between donkeys and horses. Increasing the understanding of donkey behaviour and physiology contributes towards making welfare improvements through applying this increased understanding to every day management, care and future learning.



GUT MICROBES BETWEEN EQUIDS ON THE SAME DIET

This research aimed to assess if differences existed between the faecal microbiota of ponies, donkeys and mules when fed the same forage diet. We found that the faecal microbiota of donkeys was different to that from both ponies and mules. Donkeys had a higher relative abundance and/or diversity of certain gut microbes with known or suspected roles in plant matter degradation, in particular high fibre forages. Our results are consistent with the previously reported increased fibre digestive abilities of donkeys compared to ponies. The variation in type and diversity of gut microbe species found in this study highlights the important differences between equine species. The findings provide further evidence of the donkey's superior ability to digest fibre sources compared with horses, and adds evidence to the argument that equine species should be considered separately when it comes to their diet.



CHEMICAL ANALYSIS OF OUR HAYLAGE

For herbivores, accurate assessment of forage nutrient quality is critical in the formulation of appropriate diets. Near-Infrared Reflectance Spectroscopy (NIRS) is a rapid analysis method commonly used in place of traditional wet chemistry to predict analyte content in forage samples. NIRS analysis relies on prediction models based on large data sets obtained through traditional chemical methodologies. This research aimed to compare results obtained by traditional wet chemistry with NIRS-based predictions from four commercially available NIRS services. Throughout the winter months, haylage plays an important role in providing our resident animals' fibre ration. The nutritive and hygienic quality of the haylage are both very important in determining the suitability of the forage for feeding and for ensuring the health of our resident animals. NIRS prediction methods have previously been used to assess the suitability of our homegrown forages however, ensuring such results are similar in accuracy to traditional chemical methodologies is very important. We use research such as this to ensure we are feeding the best quality forage, to suit the nutritional requirements of our donkeys and mules.



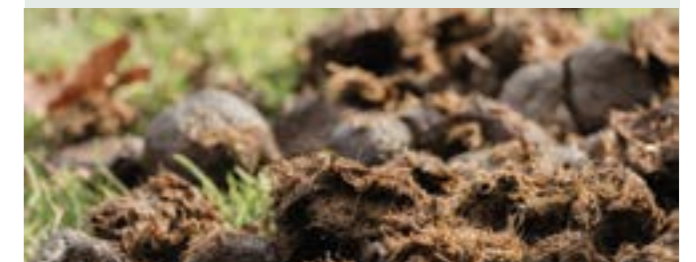
REDWORM AND EFFICIENT TREATMENT METHODS

Cyathostomins, also known as small redworms, are highly prevalent in equines, and are the most common internal parasites found within our resident herd of donkeys and mules. Cyathostomin populations are known to be resistant to all three of the main classes of anthelmintic drug. In this research, we analysed the efficacy of Moxidectin to treat cyathostomins in The Donkey Sanctuary's resident herds. We found Moxidectin to be an effective approach for treating redworms. Anthelmintics remain a vital tool in the treatment of internal parasites and it is vitally important we preserve the most efficacious products for use in clinically affected animals. By closely monitoring trends over time we can ensure targeted treatment, helping to keep our resident animals healthy while slowing the development of resistance.



EQUINE FAECAL MICROBIOTA

Gaining further insight into the complex interactions of microbial communities within the gastrointestinal tract (GIT), will ultimately help to improve our understanding of GIT health and disease. We analysed faecal samples from multiple species of equid to understand the differences in gut bacteria present, but also anaerobic fungal and archaeal diversity. We found that a core faecal microbiota exists across all equine species, composed primarily of a few predominant bacterial taxa. Equine type was associated with differences in both faecal microbial concentrations and community sizes. Donkeys were generally more distinct from the other equine types, with no differences between the horses and zebras studied. The findings of this research further strengthens the argument that donkeys should not be treated as 'small horses', since their gastrointestinal tract and gut bacteria is different to horses, meaning that they have different nutritional and management requirements.



UK AND EUROPEAN RESEARCH



LEARNING WITH DONKEYS



DONKEY RELINQUISHMENTS



SUSTAINABLE DRAFT POWER



ECOLOGICAL SURVEYS



INVISIBLE ANIMALS



LEARNING WITH DONKEYS

The last 20 years have seen an explosion of interest in animal assisted therapy (AAT) and animal assisted activities (AAA). Academics and practitioners have increasingly sought to demonstrate the psychosocial benefits of interacting with animals. However, only a handful of studies have considered such programmes from the perspective of the animals involved. Using Donkey-Facilitated Learning (DFL) as a case study, we bring a 'more-than-human' lens to concepts and practices within AAT and AAA, drawing together different ideas about animal sentience and subjectivity that have emerged within animal geography scholarship and animal welfare science. This research offers theoretical and practical ways to enhance and promote donkey welfare and wellbeing in AAAs, offering a detailed case study of the process and practice of DFL.

ECOLOGICAL SURVEYS FOR OUR RESIDENT UK HERDS

This study focused on developing an evidence-base to use in the management of our resident donkey herds. The main aims were to use the findings to improve the health, welfare and wellbeing of donkeys and mules, deliver ecological benefits and improve ecosystem processes. The project described the semi-natural environments in which our donkeys live, and recorded baseline data to monitor change over time and in relation to management changes. We used the data to identify sites of good quality grassland, those with potential to be improved, and areas of more severe land degradation to inform maintenance plans, management prescriptions and restoration measures. Having a greater and more in-depth understanding of the grasslands we have available for our donkeys and mules has allowed us to develop and improve our management practices to suit the different ecosystems we have across our sites.

FACTORS INFLUENCING DONKEY RELINQUISHMENTS TO THE DONKEY SANCTUARY (2013-2015)

In the UK, hundreds of donkeys are relinquished to the care of charities every year, however, little is known about the reasons for relinquishment or their previous health status. This work explores the demography, preventative healthcare and reasons for relinquishment of donkeys to The Donkey Sanctuary in the UK, using data from 2013-2015. We found that relinquished donkeys often had not had routine preventative care, highlighting the need for the UK vet profession to engage more proactively with donkey clients to improve the provision of preventative care and improve welfare. Understanding the main reasons for relinquishment can inform future strategies of outreach and training for UK-based donkey owners.

DONKEYS AS A SUSTAINABLE SOURCE OF DRAFT POWER

This research documents the history of draft animal use, and outlines how the donkey still has an important role to play as a sustainable power source in the 21st Century. The research found that the estimated global income from donkeys exceeds \$300 million a day, and that the replacement of donkeys by machinery in developing countries is detrimental to the society in many cases. Donkeys as a sustainable power source are ideal for the small farmer, and provide many benefits including preserving family independence, allowing them to work when they need to and not when a communal machine is available. Furthermore, donkeys are not subject to the supply of machinery parts, fuel or technical expertise regarding maintenance of machinery systems. This research work increases the perceived value of donkeys, which helps encourage owners to deliver improved welfare standards, increase breeding activities and engage in environmentally-friendly and sustainable methods of agriculture.

INVISIBLE ANIMALS: HOW DONKEYS ARE VIEWED BY BRITISH SOCIETY

We wanted to understand how donkeys are understood and represented in British culture, so we analysed more than one million words from traditional and social media. We found that donkeys are most commonly represented as objects of entertainment and ridicule, as well as objects of pity, suggesting they have a low status within UK society. Unfortunately, both positive and negative stereotypes can obscure the real animal, leading to misunderstanding and false ideas/information about donkeys. This work will be used to help target our outreach activities surrounding the value that donkeys can bring to societies, and can help inform public communication and education about donkeys, challenging negative stereotypes and producing more accurate understandings of donkeys, thereby improving their status and welfare.

GLOBAL RESEARCH

“ Working donkeys and mules are the backbone of rural economies across the world. They play a central and critical role in supporting resource-limited communities, providing people with a means to earn a living, transport goods, collect water or enable their children to access education. Unfortunately, the remote and marginalised nature of these communities means that they are often overlooked by national or global policy, and donkeys suffer poor welfare in silence. Our global research work focuses on documenting and evidencing the critical role that working equids play globally, so that we can drive evidence-based policy changes to support animal health service provision, and encourage owners to improve equid welfare ”

Dr Zoe Raw – Head of Global Research



GLOBAL WELFARE ASSESSMENT

MEXICO

RURAL PORTUGAL AND SPAIN

NEPAL'S MOUNTAIN MULES

EGYPT

NEPALESE BRICK KILNS

WORKING DONKEYS IN NORTHERN INDIA

THE WELFARE AGGREGATION AND GUIDANCE (WAG) TOOL

Following on from the publication of our EARS tool, we developed a method to further summarise equid welfare data, allowing us to quickly see at a glance the main challenges and welfare problems present in different equid populations. The tool summarises welfare data across five 'grades' for different aspects of welfare; health, nutrition, behaviour, living and working conditions. We found that our new tool provides a clear and concise way to identify and monitor equids in greatest need, and outlines a process for targeting the specific concerns present in each population. The WAG tool provides practitioners with a methodology to effectively target the correct interventions towards the equids in greatest need, giving the best chance of welfare improvements on a broad or local scale.



WELFARE OF WORKING EQUIDS IN NEPALESE BRICK KILNS

To deliver effective interventions to improve working equid welfare first requires understanding of the main challenges affecting those populations, and what the source of any poor welfare might be. To understand how working equid welfare changes as the season progresses in the brick kilns of Nepal, we assessed the welfare of working equids in seven brick kilns throughout Nepal, before the working season began. We found that unfortunately the welfare of equids prior to starting brick kiln work was poor. Hazardous housing and environments were observed in all kilns. Owner/handler responses and examination of the animals indicated poor working conditions and poor management practices. The majority of working equids were underweight, with poor general health, numerous injuries and musculoskeletal issues. This raised significant concern for the welfare of the animals and forthcoming working season. We followed this study with support to our local partner, Animal Nepal, to assist them in targeting their attention to the worst affected areas and individual animals.



CULTURAL 'BLINDSPOTS': SOCIAL INFLUENCE AND THE WELFARE OF WORKING DONKEYS IN NORTHERN INDIA

We examined a range of socio-cultural, gender-related, historic and socio-economic factors influencing owners' capacity to care for working equids in northern India. We found that the contribution of women to equid care is typically overlooked, due to the preconceptions that men are the head of the household in India. In fact, while men are often interviewed and take claim for many aspects of equid ownership, it is women that are largely in charge of equid care. Consequently, women's access to training has been either non-existent or limited which has implications for equid care out of season when their husbands leave them in sole care of the equids when they have to leave to secure other work. Many owners feel a sense of shared suffering with their equids though feel they have no autonomy to improve either's situation. Those owners speaking more compassionately about their equids did have better equid welfare. These insights can help develop more focused and effective interventions, and cross-collaboration between humanitarian and animal welfare organisations is encouraged.

WORKING EQUID WELFARE IN MEXICO

Factors affecting working equid welfare are wide-ranging and reflect cultural, economic and climatic conditions, the type of work equids are used for, and individual differences in the practices of their handlers. In Mexico, working equids are widely used for agricultural activities, however, welfare issues are common. We assessed the welfare of working equids across three regions of Mexico, to try to understand the main factors influencing welfare. We found significant regional variations in welfare, suggesting that environmental and/or cultural variations produce a major effect on the lives and welfare of working equids. This study provides evidence to support the use of baselining and investigating local factors in order to effectively develop interventions that are tailored to specific regions.



THE EARS TOOL: CASE STUDY OF NEPAL BRICK KILNS

We used the EARS tool to collect data on the welfare of working equids in Nepalese brick kilns, to provide an overall summary of equid welfare. We found that there should be better access to clean water, both when working and stabled, which would improve welfare. We suggested that equipment should be removed during rest periods, which may reduce the number of scars and swellings observed. There should be improvements to the housing regime to allow the equids to rest and recuperate. We found that the attitudes of handlers towards their equid has an impact on the welfare conditions of that animal, and suggest training programs to address this, specifically focusing on the impacts of using harmful practices such as hobbling or tethering.

WORKING EQUIDS IN RURAL PORTUGAL AND SPAIN

This study aimed to provide insight into the welfare status and traditional use of working equids in rural Western European communities using the new EARS welfare tool. We found that the welfare of most working equids was categorised as 'fair', and that the EARS tool provided an effective method of capturing a variety of data including information on traditional practices, community structure, and beliefs of equid owners. We suggest that by developing a better understanding of the cultural context, social structure, and attitudes of community members, more effective and targeted intervention strategies can be developed.

NEPAL'S MOUNTAIN MULES

We used data collected from the Ghorka region of Nepal to provide a discussion of the welfare of mules in the mountains of Nepal, including details of their translocation from India, pressures during monsoon season, end of life issues, and future prospects. This research highlights the welfare issues of mountain mules including transportation and climatic conditions to provide some evidence to improve to legislation or gain more support for working equids in the precarious environments of Nepal's mountains.

THE FEET OF WORKING DONKEYS IN EGYPT

Working equids rely on sound, balanced hooves, but data describing the typical morphology of the legs and feet of working donkeys are currently lacking. To address this gap in knowledge, we measured the front and hind feet of healthy working donkeys in the brick kilns of Egypt. We found that a broken-forward hoof-pastern axis may be normal for donkeys; significant correlations exist between body mass and hoof width; the trends we identified could be used to develop donkey-specific foot care guidance, since most foot care guidance focuses exclusively on horses. These measurements provide valuable insight into the relationship between hoof and body characteristics, which may aid the development of guidelines for the trimming and management of working donkey hooves.





THE IMPORTANCE OF WORKING EQUIDS TO GLOBAL COMMUNITIES

RESILIENCE AND THE ROLE OF EQUIDS IN HUMANITARIAN CRISES

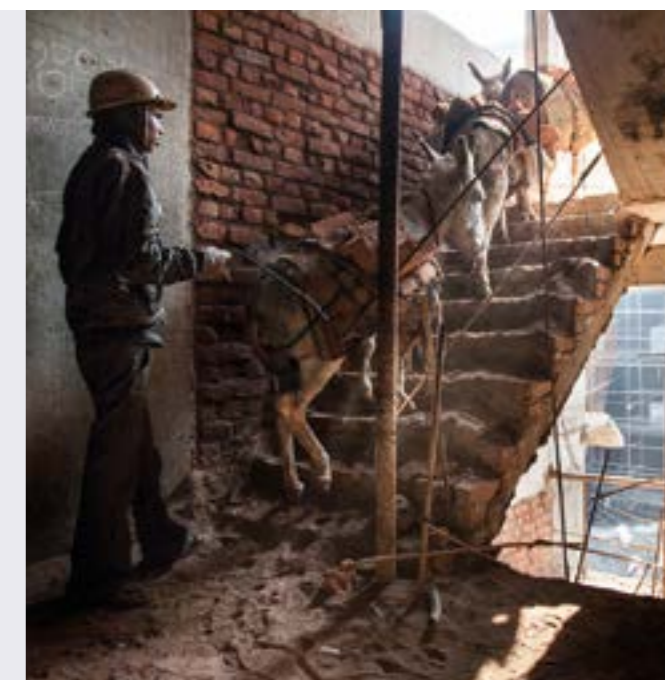
To date, the majority of resilience work has focused on the restoration and/or human societies and economic systems, with little attention given to the place and role of animals within such systems. However, as strong and adaptable animals, working equids play a critical role in supporting the resilience and recovery of communities affected by crisis. They provide a source of income, support rebuilding efforts and offer a means of transport in/out of affected areas. They also help maintain a sense of cultural identity and community cohesion during times of upheaval and crisis. We found that adequate provision is rarely made for equids in times of crisis. We suggest that more attention needs to be given to the role of equids in sites of disaster, conflict and crisis, and that efforts to meet the Sustainable Development Goals (SDGs) could be greatly strengthened by recognising how equids uniquely contribute to the development of resilience within marginalised or remote communities.



Mohammed al-wafi / Shutterstock.com

'HOoves IN THE PAST AND FUTURE': WORKING EQUIDS AND INFRASTRUCTURE DEVELOPMENT

This research investigates the way in which working equids and their owners are pushed beyond their limits of capability in roles linked to infrastructure development in low- and middle-income countries and developing economies. In such cases, traditional management and husbandry is inadequate to cope with the demands of the new roles, creating substantial negative implications for both human and equid health and welfare. Such situations are often 'invisible' to governments; this research seeks to document and highlight the problem, so that development organisations and Government agencies can begin to tackle the problems faced by people and animals.



HEALTH-RELATED DECISION MAKING FOR WORKING EQUIDS IN NORTHERN INDIA

A common assumption is that the healthcare and veterinary treatment of working equids in impoverished communities relies entirely on their owners' income or financial prosperity. We conducted interviews and livelihood surveys with 37 equid owners in brick kilns and construction sites in northern India. We found that factors influencing an owner's decision to provide healthcare for their equid were based on four factors, only one of which was economic. The factors were: infrastructural factors, community characteristics and experience, owners' characteristics and experience, and affordability. Equid owners also used a number of local and traditional medicines, which sometimes get overlooked because they are not part of Western medicine; however, the owner has still demonstrated motivation to treat their equid with positive health outcomes as their goal. This work highlights the importance of fully exploring cultural and social factors which influence working equid welfare, and of not making assumptions, when working with equid-owning communities.



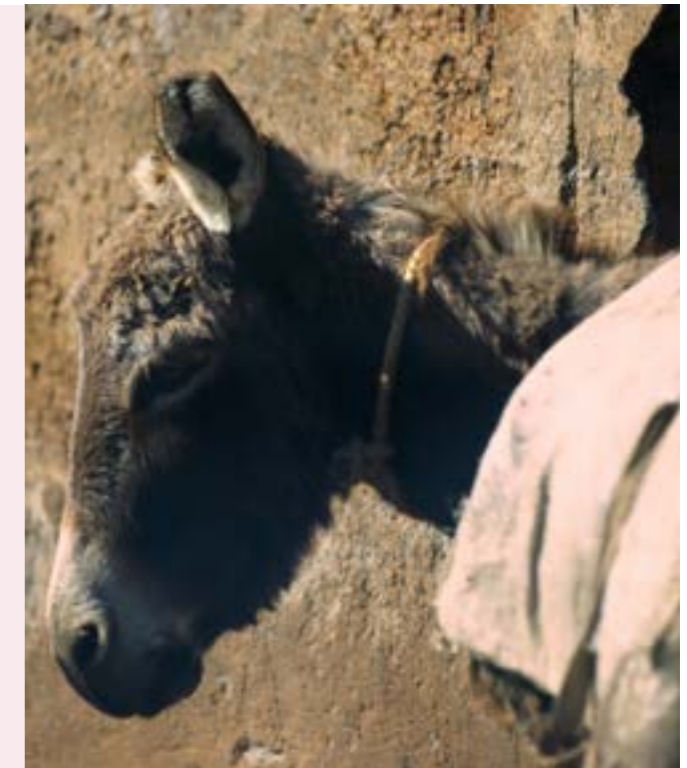
NO PRESCRIPTION, NO PROBLEM! AN ANALYSIS OF ANTIMICROBIAL STEWARDSHIP RELATING TO WORKING EQUINES IN NORTHERN INDIA

This work set out to investigate the availability of antibiotics for working equids in northern India, in the context of how incorrect prescribing practices may be contributing to antimicrobial resistance in equids. We found that most drug-retail workers had no formal training about animals or their related pharmaceuticals, and no vendors correctly dispensed drugs for symptoms – all under dosed. Inadequate drug dispensing was driven by a general lack of training, lack of knowledge, commercial and social pressures. This work allows insight into one of the possible main causes of antimicrobial resistance in equids, highlights the failure of curriculums within training for pharmacists, and highlights the importance for improving enforcement to overcome illegal registration/licensing. Such results can assist advocacy in pressuring for improvements in training and enforcement, which can improve equid welfare in the longer term.



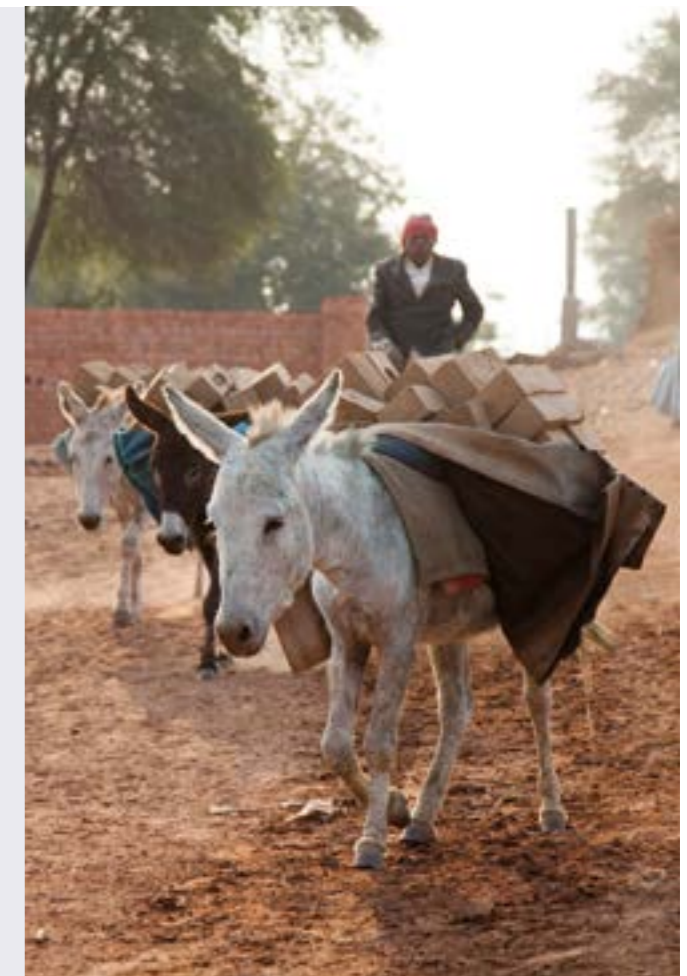
HOW WORKING EQUIDS CONTRIBUTE TO WOMEN'S LIVES IN GUATEMALA

This research examines how working equids contribute to women's livelihoods in six regions of Guatemala. We found that working equids play an important role in supporting women's livelihoods by reducing domestic drudgery, generating income, supporting other livestock and saving time. Women have reduced capacity to care for equids as extension services largely ignore their input and historically have focussed training solely towards men. When women avoid using working equids directly to aid their work, this avoidance was mostly driven by fear of equids. This study highlights the importance of working equids and their role supporting the livelihoods and lives of women in Guatemala, but also shows that women in this region have a lack of knowledge and/or skills in handling, because traditional gender roles exclude women in certain circumstances.



ONE WELFARE: LINKING POVERTY, EQUID OWNERSHIP AND EQUID WELFARE IN THE BRICK KILNS OF INDIA.

Brick kilns are associated with extremely low pay, poor working conditions and a lack of regulation. Equids, however, may provide a route out of poverty by enabling workers to access a higher income. The relatively higher financial returns from healthy equids could also motivate welfare improvements. We investigated the links between poverty, equid ownership and equid welfare in the brick kilns of Ahmedabad, India. We found that equid ownership was linked with culture and may provide the only route out of extreme poverty within some Scheduled Tribes in India. Equid health improved with longevity of ownership, as owners who view working with their equids as a long-term partnership are more likely to invest in their equid's health. Understanding the relationship between human and equid welfare using a "one welfare" approach, and encouraging collaboration between animal and human-focused organisations, will greatly increase the chance of sustainable improvements to both human and equid welfare.



FERAL AND FREE-ROAMING DONKEYS

SCIENCE AND KNOWLEDGE FOR FREE-ROAMING DONKEYS

Free-roaming donkeys are largely understudied, misunderstood and clouded by dichotomous points of view, different conservation agendas and the presence of other 'higher value' species in the same habitats. There is a critical need for more in-depth, site-specific studies on free-roaming donkeys, using tools and techniques from across the social and natural sciences. This paper provides an extensive review of the scientific literature pertaining the place and role of free-roaming donkeys. Using both qualitative and quantitative techniques, we critically examine the logics and rationales that are used to either support or denounce donkey presence in particular landscapes and discuss their 'ecological belonging' in relation to such contexts.



FREE-ROAMING DONKEYS IN BRAZIL

Working donkeys have played an important historical role in the Brazilian Northeast, but their replacement by motorized vehicles and machines has led to mass abandonment and the proliferation of free-roaming populations. This research aimed to identify, document and analyse individual and collective perceptions of free-roaming donkeys in Brazil, through qualitative exploratory research. We found that many people feel a sense of pride and historic attachment to donkeys. However, this does not necessarily translate into concrete welfare improvements for donkeys. Donkey abandonment is not simply the result of individual personal choice (by owners). It is linked to a suite of complex socio-economic issues, including rural development, changes to farming practices, the commodification of donkeys (skin trade) and shifting global economic priorities. These insights can inform policy makers and veterinary agencies, to make important decisions regarding their welfare and management.



FREE-ROAMING 'FERAL' DONKEYS IN A RAPIDLY CHANGING WORLD

Free-roaming, or feral, donkeys are viewed in both positive and negative ways depending on where they are found. This research explored the social status of free-roaming donkeys globally, including how they are perceived, categorised and managed. We found a complex range of ways that free-roaming equids are described and viewed, which also seemed to be embedded with human social relations (historical, political, economic). This work challenges assumptions and perceptions of free-roaming donkeys, offering a new way of understanding their unique status and situation. It identifies research gaps and opportunities that would inform more detailed and holistic evaluations of free-roaming donkeys in the future.





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Clancy, C., Cooke, F. (2021) Learning with donkeys – a ‘more-than-human’ approach to animal assisted activities. *Society & Animals*. Under review.

Clancy, C., Kubasiewicz, L., Raw, Z., Cooke, F. (2021) Donkeys, ecologies and place: Science and knowledge for free-roaming donkeys (*equus asinus*) – a critical review. *Journal of Wildlife Management and Wildlife Monographs*. Under review.

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Clancy, C., Watson, T., Cooke, F. (2021) Invisible Animals: understanding the contemporary status of donkeys in UK/British society. *Anthrozoos*. Under review.

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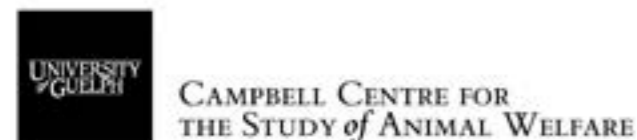
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The Donkey Sanctuary was founded by Dr Elisabeth Svendsen MBE in 1969. The Donkey Sanctuary (registered charity number 264818) and its sole corporate trustee, The Donkey Sanctuary Trustee Limited (Company number 07328588), both have their registered office at Slade House Farm, Sidmouth, EX10 0NU. Linked charities: The Elisabeth Svendsen Trust for Children and Donkeys (EST); The International Donkey Protection Trust (IDPT).