

LETTERS



Ensuring livestock welfare could help reduce predator attacks.

Edited by **Jennifer Sills**

Animal welfare's role in human-wildlife conflict

Human-wildlife conflicts threaten biodiversity conservation, food security, and human well-being. As recently highlighted in the Perspective “Human-wildlife conflict under climate change” (B. Abrahms, 30 July, p. 484), climate change is causing this threat to escalate. To mitigate human-wildlife conflicts, there have been calls for better integration of social, economic, political, ecological, and even historical factors. However, one factor of paramount importance is often overlooked: the responsibility of farmers and competent authorities to ensure livestock welfare.

Livestock welfare has been declared a priority by the World Organisation for Animal Health (OIE), an intergovernmental body with 180 member nations. OIE provides standards for the improvement of the welfare of farm animals, including recommendations for protecting them from wildlife attacks. Wildlife attacks impinge on an animal's right to live without discomfort, fear, distress, pain, or injuries (1). As Abrahms explains, wildlife attacks on livestock may intensify in some regions as climate change

forces predators and livestock to increase their spatial overlap and interactions (2). Climate-driven changes may also increase livestock vulnerability as diseases become more prevalent or decreased resources lead to poor nutrition (3, 4).

Enforcing livestock welfare will serve to further reduce livestock vulnerability to predation. Efforts to secure animal welfare can also buffer the impact of climate change on these human-wildlife conflicts worldwide by reducing both wildlife attacks on healthy unprotected livestock and those mediated by livestock's poor condition. Governments should enact regulations that integrate livestock welfare duties and hold livestock owners accountable for providing adequate resources and protection to farm animals. For example, European Directive 98/58/EC states that “animals not kept in buildings shall where necessary and possible be given protection from adverse weather conditions, predators, and risks to their health” (5). Strengthening livestock protection by, for example, guarding, fencing, using non-lethal deterrents (6), and requiring farmers to inspect livestock frequently would reduce wildlife attacks while allowing proper attention to sick or injured livestock.

The integration of animal welfare into human-wildlife conflict mitigation strategies makes clear that the responsibility

for alleviating conflict lies with everyone involved, not just conservation professionals.

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Disability innovation strengthens STEM

Individuals with disabilities face many barriers to pursuing careers in science, technology, engineering, and mathematics

(STEM). In an effort to contribute fully, they have called for accommodations such as flexible schedules, remote work options, and a supportive work culture. Meanwhile, they created technologies that would allow them to work more effectively. During the COVID-19 pandemic lockdowns, many in STEM who had never needed such accommodations before came to rely on them (1). Going forward, we must remember that accommodating people with disabilities in STEM benefits us all.

People with disabilities are hindered by limited understanding by employers (2), lack of role-models (3), and limited encouragement to pursue a career and participate in STEM-related activities (4). Students with disabilities are less likely to receive financial aid and to be enrolled full time (5). Women with disabilities are more likely to be unemployed and hold lower status occupations compared to men with disabilities (6). Barriers to inclusion go beyond a lack of access to accommodations; culturally informed biases, stigma, and even self-doubt relating to disability contribute to underrepresentation and inequity.

Diversity drives innovation. Despite the challenges they have faced, people with disabilities pioneered technologies that eased the transition to a work-from-home culture. The background-blurring feature in video conference calls was developed by a deaf software engineer to facilitate lip-reading (7). This tool now offers privacy to people juggling working from home and childcare or messy home settings. An engineering graduate student with carpal tunnel syndrome developed the transformative touchscreen and multi-finger gesture technology (such as two-finger scrolling) that underlies the touchscreens used on iPads and iPhones (8, 9).

As we dealt with upheaval in schedules and adjusted to home workspaces, many in STEM have leveraged mental health tools to manage pandemic anxiety (10). This experience has made us all more aware of what it's like to live and work under conditions that are not optimal. As people with disabilities have argued, we need to be flexible, to adjust our work expectations (11), and to be kind to ourselves. Now is the time to acknowledge that individuals with disabilities are strong and innovative contributors to society. By valuing traits such as compassion, empathy, and humility, we can empower all people in STEM, making our field better, not weaker.

We call on our institutions to harness the strengths that true diversity of ability brings, to work together toward a fully inclusive culture, to raise awareness of disability as an essential part of diversity,

and to actively work toward an environment free from bias and discrimination. This requires that we unlearn harmful assumptions and learn new concepts, such as Universal Design principles (12). It will require continuous self-education and reflection as well as persistence, concrete actions, funding, and, above all, accountability. Individuals with disabilities can and should lead these efforts, which will benefit the scientific community and humanity as a whole.

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Collective agency transforms societies

Human agency may provide the lens through which COVID-19's legacy will be viewed, according to J. Couzin-Frankel's historical account of pandemics ("Will COVID-19 change science? Past pandemics offer clues," *News*, 13 July, <https://scim.ag/2W7ZtD2>). She uses the legacy of the HIV pandemic as one example, celebrating the patient-activists who had to fight for access to then-experimental HIV treatment and whose efforts ultimately transformed treatment approval policies. HIV activists' transformative legacy is larger than this, however: It was collective agency that fought marginalization, exclusion, and

stigma attached to HIV-affected communities. This legacy of fighting stigma should also shape the lessons societies learn in the wake of COVID-19.

Stigmatization is a dynamic social process that discredits certain types of knowledge and lived experience (1). Stigma is a form of symbolic power that intends to keep people either down (e.g., by shaming) or away (e.g., by excluding). Stigmatization contributes to the marginalization of groups and maintains racialized and gendered inequalities in societies (2). Stigmatization is thus a threat to societal cohesion and an obstacle to sharing knowledge in a way that transforms societies.

The lived experiences of a pandemic are discredited when the affected community is already stigmatized, as was the case for LGBTQI+ people during the HIV epidemic. Thus, many experiences learned in the HIV epidemic, such as how to increase acceptance of barrier methods (e.g., condoms for HIV and now face masks for COVID-19) (3), were lost and had to be relearned for the societal response to COVID-19. Marginalized communities who have suffered disproportionately from COVID-19 have developed forms of collective agency as well (4). Yet collective agency-based perspectives remain under-explored (5) or under-heard in health research. Learning from the collective agency of marginalized communities in pandemics would benefit societies as a whole and promote cohesion, provided it is combined with actively fighting marginalization and stigma.

Transformative learning inspired by health activism research could take many shapes (6). The memories of collective agency should be kept alive and accessible to all members of the society. Lived experience of marginalized communities should be acknowledged as expert knowledge. Creating equitable, cohesive, and participatory spaces will allow the transfer of community knowledge and collective agency.

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