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Comments: I am writing you today to encourage you to oppose allowing ebikes on trails currently open to mountain bikes. Bicycles do not have motors. All ebikes have motors. Therefore, by definition, they are motorized vehicles. No matter what kind of mental gymnastics the International Mountain Biking Association (IMBA Trail Solutions) and Bicycle Product Suppliers Association (BPSA) have done to convince themselves and others anything to the contrary, this is an undeniable fact.

I am a mountain biker who rides multiuse trails in the National Forest weekly. Additionally, I have logged hundreds of hours of volunteer trail work on numerous trail systems around the southeastern United States including those in the National Forest. My greatest concern is the increased erosion of trails caused by ebikes. The trail design and construction arm of the International Mountain Biking Association (IMBA Trail Solutions) provided a final report to the Bicycle Product Suppliers Association (BPSA) regarding the impacts of ebikes on trails in 2016 https://b.3cdn.net/bikes/c3fe8a28f1a0f32317_g3m6bdt7g.pdf. The work for this report was paid for by BPSA which is an organization of ebike manufacturers. Therefore, this study is analogous to the research paid for by Phillip Morris that found cigarettes don't cause cancer. They used very small sample sizes ($n = 10$) to demonstrate there was no statistical difference between treatments (as they had hoped to find) which violates the most basic scientific ethics. As I was suspicious of their findings, I requested the data from the study and reanalyzed it in an ethical manner and evaluated it critically. Those data show an overall 25.1% increase in trail erosion caused by class 1 ebikes compared to mountain bikes. In another component of the study focusing on uphill acceleration and erosion, class 1 ebikes cause 138% more erosion than mountain bikes. This is no surprise to me as class 1 ebikes are designed to go 20 mph uphill thus generating much greater torque on the soil than a mountain bike which creeps along at only a few miles per hour uphill when pedaled by even the strongest rider. In addition to these numbers comparing erosion on a per unit of travel basis, the primary allure of ebikes is that a rider can ride farther and longer with the help of the electric motor and battery power it contains. Therefore, the actual increase in erosion caused by ebikes will likely be even greater in reality than that of a comparison based on identical segments of trail. This increased sediment displaced by ebikes means any work done to satisfy NEPA for mountain bike access and trail building is insufficient for ebikes.

In addition to increased erosion caused by ebikes, very few multiuse trails were designed and built for motorized travel. Almost all National Forest trails in the eastern U.S. have numerous blind curves and sections with short sight lines due to dense vegetation. With low speeds of uphill travelers, these are very easily managed issues. Hikers, equestrians, and uphill mountain bikers are slow and quiet allowing us to hear louder and faster downhill mountain bikers leading to vocal communication to alert our presence preventing head on collisions. Ebikes moving 20 mph uphill will also be loud prohibiting their riders from hearing downhill mountain bikers potentially leading to head on collisions of 40 mph or more between riders.

Over the decades of building trail, we as trail builders have developed some key principles to developing safe and sustainable trail systems (see Leung and Marion 1996, Marion and Leung 2004 for summaries). One of those principles is placing more challenging features farther from trailheads. This makes those features less likely to be encountered by novice riders lacking the skill and experience necessary to successfully navigate them. With ebikes, even beginner riders lacking the most rudimentary skill and experience necessary to avoid hurting themselves and others will be able to access the most difficult features in remote locations. Those features were built and maintained in a way never intended for such novice riders to have to navigate them. I have seen this first hand at Carvins Cove in Virginia as the recent opening of these trails to ebikes has allowed novice ebikers to access technically challenging, and remote terrain with limited skills to navigate it. Allowing ebikes negates decades of learning and makes it impossible for us to design and maintain safe and sustainable trails where users are likely to have successful and safe use of trails. This assertion is supported by a recent paper investigated in increased incidence of injuries associated with ebikes (Hinder and Jager 2019).

The only reasonable argument for the use of ebikes on trails is to allow those with injuries and ailments to experience the outdoors. I am in support of allowing someone with a legitimate disability to use an ebike on

multiuse trails. However, the injuries and ailments of regular mountain bikers I know include full cardiac arrest, cancer, broken neck, kidney removal, artificial hips, artificial knees, diabetes, and numerous other injuries and diseases. Despite this impressive list of ailments and injuries, all of these riders can regularly be seen pedaling their mountain bikes with a smile on their faces around Roanoke, VA. To the contrary, the regular ebike riders and most vocal proponents of ebikes around Roanoke are perfectly able bodied and healthy. In my opinion, it seems silly to risk erosion of our trails, degradation of our forests, and increased risk and injuries to all trail users simply because some people don't want to pedal their bikes.

Sincerely,

Steven L. Powers, Ph.D.