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Provided by Randee Tolentino at the
OC Parks Trails Subcommittee Meeting,
January 9, 2025

Orange County Cycling Business Coalition & PeopleForBike's EMTB Resources

An electric bicycle is designed similarly to a traditional bicycle but has three additional components – a small motor that provides assistance to the bike rider, a battery to provide power to the motor, and electronics that enable the rider to control the system. Recent advances in electronic and battery technology have made electric bicycles more affordable and an excellent form of transportation and recreation for many Americans. The federal government has regulated electric bicycles since 2002 when legislation was passed defining low-speed electric bicycles.

California adopted the three-class designation for electric bicycles in 2015 (CA AB 1096), defining electric bicycles as equipped with fully operable pedals, and an electric motor of less than 750 watts that meets the requirements of one of the following three classes:

(a) "Class 1 electric bicycle" is equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour.
(b) "Class 2 electric bicycle" is equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour.
(c) "Class 3 electric bicycle" is equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.

Additionally, in 2024 CA AB 1271 was signed into law, which requires all e-bikes to be labeled as Class 1, 2, or 3, depending on the top speed and whether it has a throttle. California's definition of Class 1 and 3 electric bikes will now include the phrase "is not capable of exclusively propelling the bicycle." This means that Class 1 (20 mph max assist) and Class 3 (28 mph max assist) e-bikes with both throttle- and pedal assist would no longer be within the definition of "electric bicycle."

The new legislation states, "A 'class 2 electric bicycle,' or 'low-speed throttle-assisted electric bicycle,' is a bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour. ... A class 1 or class 3 electric bicycle may have start assistance or a walk mode that propels the electric bicycle on motor power alone, up to a maximum speed of 3.7 miles per hour."

According to California state law, electric bicycles are regulated like bicycles and the same rules of the road apply to both electric bicycles and human-powered bicycles. Therefore electric bicycles are not subject to the registration, licensing, or insurance requirements that apply to motor vehicles. As of today, 48 states regulate electric bicycles like bicycles, of which 43 have defined the three classes, including California.

Existing research from the USDA Forest Service and the East Zone Connectivity and Restoration Project in Tahoe National Forest indicates that pedal-assist Class 1 electric

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bicycles can be successfully incorporated into trails with non-motorized uses.[1] Included in the East Zone Connectivity's final decision notice was the designation of 35 miles of existing non-motorized trails as open for Class 1 pedal-assist mountain bikes. With the introduction of Class 1 electric mountain bikes on natural surface trails where mountain bikes are already allowed in the East Zone, staff found that they do not significantly alter public enjoyment or affect the patterns of use on those trails. In most places, traditional mountain bikes and Class 1 electric bicycles have similar effects on the physical trails and public use patterns.[2]

Based on the findings from the East Zone Connectivity Project, the Tahoe National Forest also completed a NEPA Environmental Assessment for the Pines to Mines Project, which opened access to 72 miles of singletrack trails for Class 1 electric mountain bikes where traditional mountain bikes are already allowed. As noted in the final decision notice for the Environment Assessment for the Pines to Mines Trail Project (which included a Finding of No Significant Impact), the impacts to trail tread and speed differentials were not shown to be affected by Class 1 electric bicycles compared to analog mountain bikes:

> "Effects on trails are not considered to be significantly different between traditional mountain bikes and Class 1-E-Bikes. Their equipment components are similar including wheel size, tire tread, gearing, chain, brakes, and gear shifting mechanisms. Impacts on trails in terms of tread wear, soil movement, erosion, and contribution to sediment delivery have also been shown to be similar (Wilson and Seney 1994; Weaver and Dale 1978; IMBA 2015). Finally, a review of the literature, consideration of current user trends, and USFS observations of use characteristics during the 2019 season when Class 1 E-Bikes were allowed on all non-motorized trails in the forest determined there are no significant differences between the two vehicle classes with respect to relative speeds (Langford et al. 2015; TNF Unpublished 2020) and user behavior (Langford et al. 2015)."[3]

Pedal-assist Class 1 mountain bicycles are an emerging technology that makes the activity of mountain biking more accessible and enjoyable to users with different levels of experience, skill, and physical ability. Class 1 mountain bikes look, are equipped, and ride like traditional bicycles and simply give riders – regardless of age, physical, or cognitive ability – an extra assist while pedaling. When introduced on- or off-road, studies have shown that there appear to be minimal conflicts between Class 1 pedal-assist bicycle riders and other user groups, with no material safety distinctions between Class 1 and conventional bicycle use.[4]

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[1] USDA Forest Service. "Tahoe National Forest East Zone Connectivity and Restoration Project Draft Decision Notice." (2021).

[2] USDA Forest Service. "Tahoe National Forest East Zone Connectivity and Restoration Project Draft Decision Notice." (2021).

[3] USDA Forest Service. "Preliminary Environmental Assessment: Pines to Mines Trail Project." (2023).

[4] Jefferson County, Colorado Electric Bicycle Study (2017)

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Examples of communities and government agencies that have undertaken significant studies of electric bicycle impacts, rider behavior, perceptions, safety, etc. from other user groups are attached. We believe an objective examination of the facts leads to the conclusion that Class 1 pedal-assist electric bicycles should be treated like conventional bicycles on natural surface trails throughout California.

Additional Information on Electric Bicycle Speed, Safety, and Studies

USDA Forest Service NEPA Environmental Assessments indicate Class 1 electric bicycles can be successfully incorporated into trails with non-motorized uses.

A. The observations and data collected by TNF staff, relative to Class 1 electric mountain bikes' impact on trails, are consistent with the findings from other studies in this topic area. These studies were conducted by varying institutions, universities, and industry groups that performed research on trail impacts from recreational uses. Data from the scientific literature is consistent on several key points:
    a. Greater sediment yields are produced by equestrians and pedestrians when compared to wheeled modes of transportation. (East Zone Connectivity and Restoration Project Decision Notice & FONSI 2021)
    b. Horse traffic produces the greatest force (weight per unit area) among hikers, equestrians, mountain bikers, and motorcyclists. (East Zone Connectivity and Restoration Project Decision Notice & FONSI 2021)
    c. Horses cause greater increases in soil compaction, litter, trail width, and trail depth compared to hikers and motorcycles. (East Zone Connectivity and Restoration Project Decision Notice & FONSI 2021)
B. TNF's observations related to trail impacts are also consistent with a study conducted by the International Mountain Bicycling Association (IMBA) which found similar effects between Class 1 electric mountain bikes and their conventional counterparts (East Zone Connectivity and Restoration Project Decision Notice & FONSI 2021).
C. Based on a review of their findings, "Tahoe National Forest has determined that inclusion of Class 1 E-bikes as a designated, legitimate use on these trails does not constitute an increased adverse impact to their sustainability," (East Zone Connectivity and Restoration Project Decision Notice & FONSI 2021).

Electric bicycles travel at similar speeds to traditional bicycles.

A. Class 1 electric bicycles have a motor that cuts off after the rider reaches 20mph. This is not the average speed. On flat and uphill surfaces, electric bicycles travel on average 2-3 mph faster than conventional bicycles (i.e. around 13-14 mph). However, studies show that the sex of the rider is a better predictor of speed than whether they are using a conventional or electric bicycle. Studies also show that electric bicycles do not travel significantly faster than regular bicycles, and in some instances, are slower, depending on the location and the rider.
    - US Department of Transportation Federal Highway Administration. "E-Bikes in Public Lands: A Human Factors Field Study." (August 2023).

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- In locations identified as a higher risk for potential conflicts along an unpaved, multiuse trail, analysis shows that e-bike riders travel slightly faster on average than conventional bike riders. However, the **sex of the rider predicts a greater increase in speed** (males average 2.51 mph increase) **than whether they are using a conventional or electric bicycle.** Distributions of e-bike and conventional bike rider speeds overwhelmingly overlap with one another: both exhibit similar extremes at the high and low ends of the speed spectrum.

- Tahoe National Forest NEPA Environmental Assessment. "East Zone Connectivity and Restoration Project Decision Notice & FONSI" (2021).
  - During the EA process, TNF concluded that differences in speeds on singletrack natural surface trails are largely dictated by the rider's ability as well as trail conditions, alignment, and design. Additionally, it was noted that Class 1 electric bicycles and conventional mountain bikes have almost indistinguishable frames and components, making their stopping ability similar and trail etiquette guidelines the same for both types of users.
- Cherry, C. & MacArthur, J., E-bike safety, A review of Empirical European and North American Studies (Oct. 15, 2019)
  - "[Electric bicycle] riders tend to ride at higher speeds on uphill segments, but not flat or downhill segments.").
- Langford, B. et al, "Risky riding: Naturalistic methods comparing safety behavior from conventional bicycle riders and electric bike riders, Accident Analysis & Prevention." (Sept. 2015)
  - "We find that average on-road speeds of e-bike riders (13.3 kph) were higher than regular bicyclists (10.4 kph) but shared use path (greenway) speeds of e-bike riders (11.0 kph) were lower than regular bicyclists (12.6 kph)".

<u>Electric bicycle riders comply with laws in the same way as riders of conventional bikes</u>.

A. Electric bicycle users are like most people and choose to respect the law of the road and be kind to others with whom they share public resources. They would respond more favorably to restrictions on use rather than an outright ban. Most critically, existing studies show that electric bicycle riders comply with laws to the same extent as bicycle riders.
   - Cherry, C. & MacArthur, J., E-bike safety, A review of Empirical European and North American Studies (Oct. 15, 2019)
     - "For other safety surrogates (wrong way riding, stop sign and signal compliance) e-bike riders behaved in the same way as cyclists, with similar violation rates."
   - Langford, B. et al, Risky riding: Naturalistic methods comparing safety behavior from conventional bicycle riders and electric bike riders, Accident Analysis & Prevention (Sept. 2015)
     - "E-bike riders exhibit nearly identical safety behavior as regular bike riders and should be regulated in similar ways.".

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The safety outcomes relating to electric bicycle use and conventional bicycle use are similar.

A. Banning electric bicycles from areas where traditional bicycles are used is not justified based on safety issues or the risk of collisions.
    - US Department of Transportation Federal Highway Administration. "E-Bikes in Public Lands: A Human Factors Field Study." (August 2023).
        - Conventional and e-bike rider behavior is similar at locations with a higher risk of conflict. Both e-bike and conventional bike riders reduce speeds and exhibit similar precautionary behaviors: at vehicle conflict points, in narrow sections of the trail, and when passing other trail users.
    - Cherry, C. & Fishman, E., E-bikes in the Mainstream: Reviewing a Decade of Research, Transport Review (July 2015)
        - "Overall differences in safety outcomes were not dramatic between e-bike and bicycle riders.").
    - Cherry, C. & MacArthur, J., E-bike safety, A review of Empirical European and North American Studies (Oct. 15, 2019)
        - Summarizing European studies finding that over the same distances traveled, "e-bikes and conventional bicycles have the same crash risk.".

An electric bicycle ban will not decrease ridership, only complicate enforcement. There is strong demand in the public for electric bicycles.

A. Ridership is increasing, and people are using electric bicycles to recreate, replace vehicle trips, and augment existing bicycle trips. In 2020, electric bicycle sales grew by 132% (Source: the NPD Group). This is the fast-growing sector of sales in the bicycle industry by a significant margin.
B. Industry analysts estimate that more than 13.5 million electric bicycles will be sold in the United States between 2020 and 2030 (S&P Global Bicycle Industry Risk & Opportunity Forecast produced for PeopleForBikes)

Studies by Local Governments

There are two in-depth studies that local governments have taken to understand electric bicycle rider behavior and craft local ordinances to regulate their use.

Fairfax County Research (2019)

A. Overview: Fairfax County, VA worked closely with NOVA (Northern Virginia) Parks to fund a white paper to gain a better understanding of electric bicycles. This research reviewed federal and state electric bicycle laws and model legislation, the difference in safety and behavior between regular bikes vs electric bicycles, other local trail systems policies, current park regulations, and potential alternatives.
B. Rationale: The increased use of electric bicycles within Fairfax County sparked the need to address current regulations regarding their use. The county chose to

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research the use of electric bicycles to inform a data-driven policy for their community.

C. Results: This research found that electric bicycle users exhibit nearly identical behavior as regular bike users, electric bicycle speeds were observed to be lower than standard bike speeds on shared trails, electric bicycles tend to be similar to regular bikes and most trail users are unaware of the presence of electric bicycles when asked.

Jefferson County Study (2017)

A. Overview: Jefferson County, CO conducted two studies at multiple parks to gain a better understanding of visitors' knowledge, perceptions, and concerns related to the use of electric bicycles on urban pathways and natural surface trails. Through 'Test Ride Surveys,' visitors are asked four questions before and after riding an electric bicycle to determine familiarity with electric bicycles and any changes in perception and/or acceptance after riding one. Through 'Visitor Intercept Surveys,' random park visitors are asked about their perceptions, acceptance, and concerns related to electric bicycles on trails, as well as their ability to detect an electric bicycle sharing the pathway with them.
B. Rationale: Jefferson County realized that electric bicycles are already in use on its pathways and trails, and that usage will not significantly decrease with a wholesale ban. It has opted to study the issue and engage park visitors to determine whether to allow or prohibit this technology on the transportation and recreation corridors under its jurisdiction.

Additional Information on Electric Mountain Bike Etiquette and Model Legislation

Etiquette Guidelines and Trail Signage for eMTBs

I've included several trail signage examples (linked below) from a few other communities I've heard of or helped over the last year. Many have been dealing with e-scooters, one wheels, and out-of-class electric vehicles on trails where mountain bikes are allowed, but not where electric motorcycles are authorized.

- Skyline Park, Napa, CA Trail Signage
- No Electric Scooters Signage
- Lime Scooters + Austin Signage
- FORCE Florida Off-Road Cycling Enthusiasts Signage
- Austin City Parks Signage
- Alafia Mountain Bike Trails Signage

Please find PeopleForBikes' Trail Etiquette Guidelines for eMTBs on Natural Surface trails, here.

OCEV Education

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The Out-of-Class Working Group helped to put together to educate land managers and consumers to understand what the categories are of e-bikes and e-motos, and where they can typically be ridden. You can find the "Identification Guide" here.

PeopleForBikes EMTB on State Lands Model Legislation
PeopleForBikes has created model legislation to address access for eMTBs on State Lands, which can be found here.

Many state resource agencies lack updated regulations governing electric bicycle use on natural surface trails, especially trails already open to traditional mountain bikes. This can create confusion for land managers, public safety officials, retailers, and riders.

PeopleForBikes encourages state parks and natural resource agencies to align electric bicycle regulations with those of traditional bicycles and afford local land managers the authority to allow electric bicycles on trails and in areas where non-motorized bicycles are allowed. These changes would harmonize state land management policies with the products people are actively riding, proactively manage the desired experiences of electric bicycle riders, and support the safe operation, consistent regulation, and reasonable use of electric bicycles.

The three classes of electric bicycles were established to regulate issues around speed, wattage, and motor engagement, and allow for the regulation of different types of electric bicycles on trails. The three distinct classes allow land managers the flexibility to regulate various classes depending on local conditions

According to research from the Federal Highway Administration and precedent set through federal environmental assessments, Class 1 pedal-assist electric mountain bikes (eMTBs) are a similar mode of recreation to traditional mountain bikes in terms of their speed and trail impacts. Current research shows no significant difference between Class 1 eMTBs and analog mountain bikes on trails. By focusing on these recent studies regarding pedal-assist Class 1 eMTBs, PeopleForBikes hopes to allow sensible access for Class 1 eMTBs on trails where bicycles are currently allowed across the U.S. Learn more about this topic in PeopleForBikes' model legislation on Class 1 electric bicycle access.

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Coordinating Science and Land Management across the Nature Reserve of Orange County

The Economic Impacts of Open Spaces

Open spaces are often overlooked as important contributors to a community's tax base.

On the surface it seems logical. Open spaces are non-taxed parcels of public land which do not generate annual revenues for a county assessor to collect (like residential and commercial property taxes). Furthermore, open spaces, such as the nearly 38,000-acre Nature Reserve of Orange County, are typically void of land lease agreements which produce significant sales or hotel tax dollars. In addition, open spaces generally function without a daily use fee (other than a small parking fee at some locations).

So how do land preserves like the properties enrolled in the Orange County Central-Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) positively contribute to the economic sustainability of places like the County of Orange, and the Cities of Irvine and Newport Beach?

How Open Spaces Deliver an Economic Benefit

Proximity to open spaces and parks is an important feature homebuyers take into account when looking for a home. Studies have revealed properties near open spaces tend to have higher real estate values, as much as 8-20%, depending on the type and quality of the open space. This enhanced real estate value ultimately results in heightened property tax dollars.

Open spaces attract business, including restaurants, shops and tourism based enterprises. For example, Crystal Cove and its shopping center, restaurants, and beach cottages are bountiful revenue sources. These places encourage spending by both residents and tourists and provide a sizable contribution of sales tax revenue to local economies.

Access to open spaces encourages recreation and physical activity and thus is acknowledged as reducing healthcare costs by promoting healthier lifestyles. The mental health benefits gained through outdoor activities and nature immersion may also reduce costs attributed to governmental agencies through stress-related illnesses.

Open spaces provide ecosystem benefits such as air and water purification, flood mitigation and carbon sequestration. In some cases, the need for expensive government infrastructure investments are often mitigated through the ownership and management of preserved lands.

Orange County residential and commercial properties adjacent to the Nature Reserve of Orange County (NROC) share an enhanced community appeal. This appeal encourages population growth, business development, talent retention, and expanded social recreational opportunities. The net result is increased tax revenues.

Dr. John Crompton, a research expert in the tourism and leisure management field, has published numerous books and articles regarding parks, open spaces and their influence on local government economies. His book, *The Impact of Parks and Open Space on Property Values and the Property Tax Base* scientifically navigates the ways to measure the economic value of urban parks and open spaces. Crompton views economic development as a means of enlarging the tax base and proclaims attracting tourists, attracting business, attracting retirees and enhancing real estate values as playing a major role in building a community's tax base. Crompton's analysis demonstrates that in ideal circumstances, "parks (and open spaces) are an investment, not a cost, because they generate more property taxes for a city than it costs to service the annual debt charges incurred in creating the amenities."

Continued on page 2

The Economic Impacts of Open Spaces From page 1

Why Economic Development Matters

Economic development is the process by which a country or region improves the economic, political, and social well-being of its people. It does this by attracting business and industries which create jobs for residents. This reduces unemployment, generates higher tax revenues, and improves local incomes, leading to a more prosperous community.

Economic development can also lead to better public amenities, healthcare, housing and cultural opportunities. It ensures access to resources that improve residents' overall well-being.

When effectively implemented, economic development programs result in improvements to infrastructure such as roads, utilities and public transportation. These upgrades benefit both businesses and residents.

Eco-tourism is one of the unique ways economic development is actively promoting environmental sustainability. The Yellowstone to Yukon Conservation Initiative (Y2Y) and its wildlife viewing programs spotlight how ecotourism is benefitting conservation. The organization reports it is "creating a movement that unifies voices and people who support large-scale land conservation. Y2Y's work addresses needs for wildlife and people, giving animals freedom to roam, and protecting habitat for grizzly bears, caribou, wolverines, wolves, and more. To protect a region this vast, we need an equally vast, diverse, and dynamic movement."

Quantifying the Economic Impacts of the Nature Reserve of Orange County

The Natural Communities Coalition (NCC) recently completed an Economic Benefits Study to understand and articulate the wide range of benefits that are generated by the Orange County Central-Coastal Subregion NCCP/HCP. NCC engaged the firm Economic and Planning Systems Inc. (EPS), based on their experience of evaluating the economic impacts on parks, open spaces, and conservation plans to implement the study.

Three key indicators were selected as part of the research framework. Those indicators included a Property Value Analysis, a Recreation Value Analysis and a Permit Streaming Analysis.

The property value research focused on identifying real estate valuations for owner occupied and renter occupied households. The first assessment focused residential properties within 500 feet of parks and open spaces enrolled in the Orange County Central-Coastal NCCP/HCP. A second assessment evaluated residential property values within 500 to1500 feet of the Reserve. The home value premium for rental and owner-occupied homes within 500 feet was $356.9 million. The home value premium for rental and owner-occupied homes ranging from 500 to 1500 feet was $577.5 million. Therefore, the economic value attributable to NROC on properties adjacent to the Reserve is $934.4 million.

Property Value	Within 500 Ft.	500-1500 Ft.	Overall Total
Owner-Occupied Home Value Premium	$300.1 million	$478.4 million	$778.5 million
Renter-Occupied Multifamily development Value Premium	$56.8 million	$99.1 million	$155.9 million
Combined Total Open Space Value Premium	$356.9 million	$577.5 million	$934.4 million

The Recreational Value Analysis utilizes an established methodology which estimates what Reserve visitors would be willing to pay for open space resources and recreational opportunities. A $15 per visit fee was established and reflects a mix of hiking, biking and equestrian activity in the Reserve. The weighted per-day value for activities is applied to annual visitation estimate. The graphic at the next page represents the economic value of specific locations within NROC in annual dollars. The total annual recreation value is nearly $88 million.

Reserve Areas	Annual Visitation Estimate	Recreation Value
Crystal Cove State Park	1,605,683	$24,085,245
Irvine Regional Parks	759,997	$11,399,955
Aliso and Wood Canyons	215,943	$3,239,145
Ridge Park	1,698, 663	$25,479,945
Peters Canyon Regional Park	318,209	$4,773,135
Upper Newport Bay Nature Preserve	652,516	$9,787,740
Whiting Ranch	111,933	$1,678,995
City of Irvine – Quail Hill	94,913	$1,423,695
Laguna Coast Wilderness Park	79,979	$1,199,685
Santiago Oaks Regional Park	40,792	$611,880
Black Star Canyon	32,259	$483,885
Upper Newport Bay Ecological Preserve	8,813	$132,195
Irvine Ranch Open Space	37,602	$564,030
City of Irvine Open Space	24,121	$361,815
City of Irvine Wilderness Access	124,816	$1,872,240
City of Newport Beach	55,302	$829,530
Total	**5,861,541**	**$87,923,115**

The Orange County Central and Coastal NCCP/HCP was founded on the principle that both conservation and development interests would be served through the implementation of the plan. With the NCCP/HCP administrative procedures in effect and replacing the status quo implementation of the California and Federal Endangered Species Acts, developers are assured that governmental consultation timeframes are streamlined. The Streamlining Value Analysis measures the number of days from which a development inquiry is filed with a wildlife agency to the date which an official biological opinion is rendered. The graphic below, from the EPS study, reveals an average efficiency of 85 days saved in the permitting process, thus achieving the streamlining vision of the NCCP/HCP.

Project Section 7 Consultation	Inquiry	Opinion	Days to Process	Days Saved
Portola Center Project	9/23/14	12/23/14	91	44
Bowerman Landfill	5/4/12	5/30/12	26	109
City of Irvine Planning Area 1	5/28/20	7/15/20	48	87
Serrano Pinnacle Housing Development	10/30/14	3/6/15	127	8
Upper Newport Bay East Bluff Drainage	7/31/17	8/23/17	23	112
Bison Park Lot, UCI	12/1/17	1/3/18	33	102
Syphon Reservoir Improvement	7/3/23	8/3/23	31	104
Peters Canyon Bikeway	2/22/21	3/15/21	21	114

Summary

Will Rogers, President Emeritus at the Trust for Public Land, is a nationally recognized advocate for land conservation. Rogers clearly understands the economic advantages of open space and reflected upon its value through the following statement. "Too many community leaders feel they must choose between economic growth and open space protection. But no such choice is necessary. Open space protection is good for a community's health, stability, beauty, and quality of life. It is also good for the bottom line."

Ecotourism

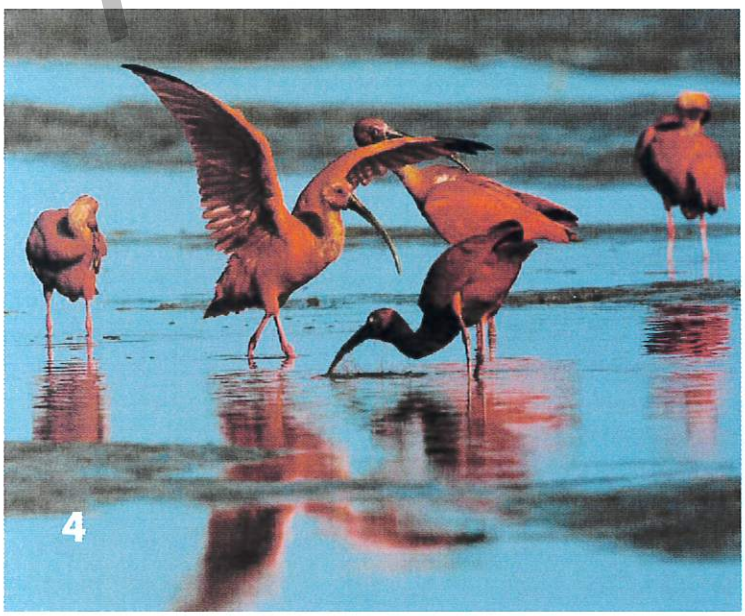
Ecotourism is a growing trend in the travel industry which is generating significant economic growth and conservation benefits to a worldwide base of nature-rich destinations.

Conservationist Hector-Ceballos-Lascurain is credited with the initial definition of ecotourism in 1987, which states, "tourism that consists in travelling to relatively undisturbed or uncontaminated natural areas with the specific object of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas." A simplified definition may read that ecotourism is travel which has a positive impact on a destination's ecology and economy.

According to Business Research Company, the global ecotourism market is expected to grow to $299 billion in 2026. Among its key outcomes, ecotourism helps communities economically thrive, builds environmental awareness, educates visitors and locals, and generates respect for the empowerment of local and indigenous populations. Ecotourism also supports wildlife conservation.

Biodiversity conservation is linked to ecotourism and its ability to attract tourists. By providing unique and meaningful experiences revealing nature's wonders, ecotourism can inspire travelers to engage in conservation and contribute to preserving our planet's precious biodiversity. As demand for sustainable and responsible travel grows, ecotourism's role in supporting wildlife conservation will become increasingly important.

The most popular ecotourism experiences are centered on wildlife viewing. The finches and reptiles of Galapagos Islands, mammals in Kenya, and tropical landscapes and species richness of Costa Rica are certainly among the more widely known travel destinations. For the more adventurous ecotourist however, there are opportunities to witness the biological wonderment of the red crab migration at Christmas Island (click for video **here**) or the birding paradise in Trinidad and Tobago (click for video **here**).



Gross Ecosystem Product (GEP) – Applying Value to Nature

In subscribing to the economic theme of this quarter's newsletter, let's take a moment to explore the term Gross Ecosystem Product (GEP), a metric designed to quantify the value of goods and services provided by ecosystems. Modeled after the gross domestic product, the GEP index allows nations to determine the monetary value of their ecological systems.

Environmental Scientist and Stanford University Professor Gretchen Daily developed the GEP measurement in 2014 on both municipal and national scales in China. GEP was adopted by the United Nations Statistical Commission in 2021. Click **here** for a brief video, where Daily contemplates, "what would the world look like if we all valued nature, systematically in our decision making."

As climate change, biodiversity loss, and resource depletion have become urgent global issues, thought leaders have increasingly recognized ecosystems need to be accounted for in economic terms. By valuing natural capital, GEP provides a methodology and systems to strive toward economic and environmental sustainability.

A report contributed by Stephen Polasky, Professor of Ecological/Environmental Economics at University of Minnesota, cited the benefits of utilizing GEP principles at a project in the Qinghai Province in China. The report indicated, "GEP can contribute to achieving important societal objectives, such as sustainable development, by bringing the value of ecosystem services and trends in ecosystem assets into public and private sector decision making and investment planning. Recent experience in Zhejiang Province shows that providing government leaders with information about ecosystem assets and the goods and services they provide advances investments and other progress toward sustainable development. A tractable measure of GEP can be widely applied for both planning and evaluation purposes, including the evaluation of government policy and performance and land use and infrastructure planning. GEP can also provide the basis for determining financial compensation for the provision of ecosystem services."

For a comprehensive view of GEP and its application in China, click **here**.

Ecotourism - Scarlet Ibis (left) Christmas Island (right)

OFF-HIGHWAY MOTOR VEHICLE INFORMATION BULLETIN

FOR CALIFORNIA LAW ENFORCEMENT

Volume 24 | April 22, 2024 | Number 1

Off-Highway Electric Motorcycles Classification, Registration, and Operation

The purpose of this Off-Highway Motor Vehicle (OHV) Information bulletin is to provide clarity on registration and operation requirements for electric powered motorcycles produced by manufacturers including Sur-Ron, Talaria, Segway, and E Ride Pro.

Background: Existing law requires every off-highway motor vehicle subject to identification that is not registered on the highway under the CA Vehicle Code to display an off-highway identification plate or device issued by the California Department of Motor Vehicles when being operated on lands described in CVC §38001(a). Recently, several manufacturers including Sur-Ron, Talaria, E Ride Pro and Segway have introduced off-highway electric motorcycles to the consumer market. There has been confusion on what these off-highway electric motorcycles are classified as per the California Vehicle Code and where they are legally allowed to be operated.

Discussion: OHMVR Division has received numerous inquiries regarding electric off-highway motorcycles sold from manufacturers including Sur-Ron, Talaria, Segway, and E Ride Pro. These electric off-highway motorcycles are often inaccurately referred to as electrical bicycles, commonly called "E-Bikes" and have often been sold and advertised by retailers as such. These vehicles are off-highway motorcycles and meet the California vehicle code definition of CVC§ 400 and CVC §436. These off-highway motorcycles do NOT meet the definition of Electric Bicycle (CVC §312.5) or Motorized Bicycle or MOPED (CVC §406). Electric motorcycles that do not meet all necessary requirements of electric bicycle (CVC §312.5) or motorized bicycle, commonly referred to as a MOPED (CVC §406) will generally default to the classification of off-highway motorcycle (CVC §436).

Sur-Ron, Talaria, Segway, and E Ride Pro off-highway electric motorcycles are specifically designed for off-highway use (per the manufacturer's owner manual), therefore they cannot be retrofitted with aftermarket equipment (lighting, braking, etc.) to make them eligible for on-highway registration. Per the California DMV website, "Any motorcycle or vehicle originally manufactured for off-highway use cannot be converted for on-highway use, unless it is manufactured for dual purposes."

The classification of an off-highway motorcycle may be confirmed by the absence of a 17-digit vehicle identification number and other information labels required under Federal Motor Vehicle Safety

Standards (FMVSS). Additionally, most of these off-highway electric motorcycles are sold without an Manufacturer Statement of Origin/Manufacturer Certificate of Origin(MSO/MCO), which is a required document by the CA DMV to apply for Off-Highway Vehicle Identification (Green Sticker/Red Sticker). The lack of a 17-digit vehicle identification number and an MSO/MCO can make it challenging for consumers to register these vehicles as an off-highway vehicle with the Department of Motor Vehicles. Existing law requires every off-highway motor vehicle that is not registered on the highway under the CA Vehicle Code to display an off-highway identification plate or device issued by the California Department of Motor Vehicles when being operated off-highway on public lands.

OHMVR Division strongly encourages our law enforcement partners to educate the public on existing rules and regulations pertaining to off-highway electric motorcycles. Persons illegally operating unregistered off-highway electric motorcycle upon a highway may be issued a citation for CVC §4000(a)(1). Unregistered off-highway electric motorcycles operated or left upon a highway may be subject to removal from the highway under the tow authority granted in CVC §22651(o)(1). Persons operating an electric off-highway motorcycle on public lands described in CVC §38001(a) may be issued a citation for CVC §38020 if the vehicle is not currently identified by a CA OHV Green or Red Sticker.

Frequently Asked Questions:

"Do Sur-Ron, Talaria, Segway, and E Ride Pro off-highway electric motorcycles meet the CVC definition of an electric bicycle?"

No. California Vehicle Code Section 312.5 defines an electric bicycle as: (a) An "electric bicycle" is a bicycle **equipped with fully operable pedals** and an **electric motor of less than 750 watts.** Per manufacturer specifications, the "Sur-Ron Light Bee X" is equipped with a 6000W electric motor and is not equipped with fully operable pedals. Please see the attached reference guide for a list of manufacturer and model specifications.

"Do Sur-Ron, Talaria, Segway, and E Ride Pro off-highway electric motorcycles meet the CVC definition of a motorized bicycle or moped?"

No. California Vehicle Code Section 406 defines a motorized bicycle as: *(a) A "motorized bicycle" or "moped" is a two-wheeled or three-wheeled device having fully operative pedals for propulsion by human power, or having no pedals if powered solely by electrical energy, and an automatic transmission and* ***a motor that produces less than 4 gross brake horsepower*** *and is capable of propelling the device at a* ***maximum speed of not more than 30 miles per hour on level ground.*** 4 gross brake horsepower is roughly equivalent to 3000W. Per manufacturer specifications, the "Sur-Ron Light Bee X" is equipped with a 6000W electric motor and is capable of reaching a top speed of 47MPH, far exceeding the speed and power limits set for mopeds. Please see the attached reference guide for a list of manufacturer and model specifications.

"Is a California OHV Green Sticker Registration required for Sur-Ron, Talaria, Segway, and E Ride Pro off-highway electric motorcycles?"

Yes. Existing law (CVC §38020 and CVC §38170) requires every off-highway motor vehicle being operated on public lands or private property that is open and accessible to the public to display an off-highway identification plate or device (CA OHV Green Sticker) issued by the California Department of Motor Vehicles. **Exception:** *Off-Highway Motor vehicles that are solely operated on private property that is under the direct control and permission of the landowner are not required to be registered/identified.*

"Can Sur-Ron, Talaria, Segway, and E Ride Pro off-highway electric motorcycles be legally operated on highways, streets, sidewalks, bike paths, bike lanes, or off-street parking facilities?"

No. These vehicles do not meet the definition of an electric bicycle (CVC §312.5) or moped (CVC §406), and therefore are only allowed to be operated in OHV designated areas or on private property. These vehicles are unable to be registered under the provisions of Division 3 (commencing with Section 4000) and cannot be modified to become street legal. These off-highway vehicles must be registered through the DMV as an off-highway motor vehicle to be operated in designated OHV areas. If the vehicle lacks proper identification, the vehicle shall only be operated on private property or on a closed course.

"Does adding aftermarket operable pedals to an electric off-highway motorcycle reclassify it as an electric bicycle?"

No. California Vehicle Code Section 312.5 defines an electric bicycle as: (a) An "electric bicycle" is a bicycle equipped with fully operable pedals and an **electric motor of less than 750 watts.** Due to the motors on electric off-highway motorcycles exceeding the 750-watt limit, they do not meet the definition of an electric bicycle, regardless of having operable pedals. Please see the attached reference guide for a list of manufacturer and model specifications.

"Can an electric off-highway motorcycle such as a Sur-Ron, Talaria, E Ride Pro, or Segway be converted to street legal?"

No. Per California DMV, "Any motorcycle or vehicle originally manufactured for off-highway use cannot be converted for on-highway use, unless it is manufactured for dual purposes." Please see the attached reference guide for a list of some manufacturer and model specifications.

For further clarification contact Superintendent Jack Gorman, Assistant Chief, Off-Highway Motor Vehicle Recreation (OHMVR) Division HQ at (661) 449-7858

REFERENCE GUIDE

								
Manufacturer	Sur-Ron	Sur-Ron	Sur-Ron	Talaria	Talaria	Segway	E Ride Pro	E Ride Pro
Model	Light Bee X	Ultra Bee	Storm Bee	Sting MX4	X3 (XXX)	Dirt eBike X260	Pro-S	Pro-SS
Top Speed	47 MPH	56 MPH	68 MPH	53 MPH	46 MPH	46.6 MPH	50 MPH	60 MPH
Peak Motor Watts	6000W	12,500W	22,500W	8000W	6000W	5000W	6000W	12,000W

CLASSIFICATION CHART

	Bicycle	**Class 1 Electric Bicycle**	**Class 2 Electric Bicycle**	**Class 3 Electric Bicycle**	**Moped Motorized Bicycle**	**Motorized Scooter**	**Electric Motorcycle (Off-Highway)**
Equipped with Pedals	Yes	Yes	Yes	Yes	No	No	No
Maximum Assisted Motor Speed	N/A No Motor	20 MPH	20 MPH	28 MPH	30 MPH	15 MPH	None
Allowed to Utilize Bike Lane	Yes	Yes	Yes	Yes	Authorized by local ordinance	Yes	No
Helmet Requirements	Under 18	Under 18	Under 18	Under 18	DOT Approved Helmet Required	Under 18	No
Min. Operating Age	None	None	None	16	16	None	None
Driver's License Required	No	No	No	No	Yes	Yes	None
DMV Issued Plate or Device	No	No	No	No	Special Issued License Plate	No	CA OHV Sticker
Electric Motor Power Limit	N/A No Motor	750 Watts	750 Watts	750 Watts	4 Gross Brake Horsepower. *(3000W)*	No Limit	No Limit
Vehicle Code Definition	**CVC §231**	**CVC §312.5 (a)(1)**	**CVC §312.5 (a)(2)**	**CVC §312.5 (a)(3)**	**CVC §406(a)**	**CVC §407.5**	**CVC §436**
Applicable Laws	**CVC §21212(a)** Helmet Requirements	**CVC §21212(a)** Helmet Requirements	**CVC §21212(a)** Helmet Requirements	**CVC §21213** Age + Helmet Req.	**CVC §12500(b)** License Required	**CVC §21235** Operation Rules **CVC §22411** Scooter Speed Laws	**CVC §38020** Identification **CVC §38301(a)** Illegal Operation Public Lands