

# GETTING UP TO *SPEED*:

## *A Conservationist's Guide To Wildlife and Highways*



### DEFENDERS OF WILDLIFE

Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native animals and plants in their natural communities. Defenders launched the Habitat and Highways Campaign in 2000 to reduce the impacts of surface transportation on our nation's wildlife and natural resources.

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## FOREWORD

The nation's transportation infrastructure, a remarkable engineering achievement, was mainly built before the first Earth Day in 1970 and before the rise of modern ecology. Since then, we have entered an era of new scientific information and new societal objectives. Transportation, science and the public have evolved accordingly. Today, enhancing the natural environment has increasingly joined safety and efficiency as the central goal of transportation for society.

Fortunately, along with this important and challenging development, the science of road ecology has emerged, focusing on plants, animals and water linked to roads and vehicles. Interested parties—transportation departments, natural resource agencies, nonprofit organizations, academics and the informed public—are rapidly discovering new common interests and opportunities for a new era of achievement. Project by project, spots along our infrastructure slowly improve and environmental objectives are increasingly included in transportation plans.

Yet, the big picture offers the greatest environmental gains and cost benefits. Three big-picture objectives provide a vision for all parties:

- 1 Improve the natural environment close to the entire road network.
- 2 Integrate roads with a sustainable emerald network across the landscape.
- 3 Integrate roads with near-natural water conditions across the landscape.

The first is a flexible trajectory with different solutions in different places. The second meshes road networks with the land's large valuable natural areas connected by major wildlife corridors for the future. The third integrates road networks with the land's natural groundwater/surface-water flows, aquatic ecosystems and fish. Indeed, diverse interested parties with a common vision are an unbeatable recipe for a powerful, cost-effective environmental accomplishment for transportation and society.

How can we get there from here? Think big, and take that first step through the pages of this book. Defenders of Wildlife's Patricia White has demystified the world of transportation for you, providing new discoveries at every turn. Knowing how to navigate and gain leverage in this big labyrinth makes us all more effective. Conservationists and transportation experts alike will find a goldmine of elucidations and opportunities for new partnerships.

*Getting Up To Speed* carries you on a journey across time and space, throughout our nation's transportation network and the maze of social, cultural and governmental influences on our natural resources and wildlife. Indeed, if you absorb but a tenth of this information, you are a dangerous opponent to the status quo. Start by improving a place, and watch that improvement cascade across the road network and the land.

Read on and see your journey come alive. Your discoveries and actions can make nature, transportation all of us winners.

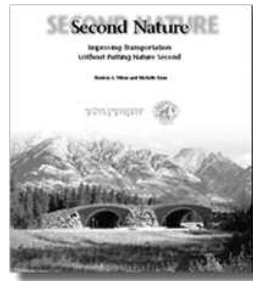
Richard T. T. Forman  
Harvard University

## INTRODUCTION

Entering the 21st century, we face the final frontier of conservation—both literally and figuratively. It's no longer enough to save species *or* spaces. As precious acres slip away under expanding infrastructure and associated development, advocates must look to a more comprehensive approach to conservation and can no longer afford to overlook unconventional partnerships. In the next century, our remaining habitat cores and corridors will be absolutely critical to wildlife as they attempt to respond to climate change.

Over the last decade, Defenders of Wildlife has recognized the urgency of addressing the impacts of highways on our nation's wildlife. Habitat loss is a significant threat to America's biodiversity, and one of the greatest consumers of habitat is poorly planned, sprawling development. Better transportation planning can shape future growth, thereby determining the quantity and quality of the habitat left for wildlife. As the issue of wildlife and transportation has garnered more attention, several excellent resources have surfaced, including the seminal *Road Ecology: Science and Solutions* by Richard T.T. Forman et al. The burgeoning science of road ecology has spawned action in agencies, academia, legislature and the conservation community.

Defenders launched the Habitat and Highways Campaign in 2000; a concerted effort with dedicated staff working to reduce the effects of surface transportation on our nation's wildlife and natural resources. The campaign has two simple objectives: reduce the impacts of highways on wildlife and prevent future habitat loss to unwise and unnecessary road building. In 2003, Defenders of Wildlife, in partnership with the Surface Transportation Policy Partnership released *Second Nature: Improving Transportation Without Putting Nature Second*. *Second Nature* outlines six winning approaches to reducing the impacts of roads and highways on wildlife and habitat, including integrating conservation planning into transportation planning, early interagency coordination, restoring habitat connectivity with wildlife crossings and using native species in roadside vegetation management.



Defenders is now proud to present *GETTING UP TO SPEED: A Conservationists' Guide to Wildlife and Highways*. While *Second Nature* was written specifically for transportation professionals, *Getting up to Speed* (GUTS) is intended for conservation advocates. Conservationists are often faced with conflicts involving transporta-

tion projects, but are ill prepared to respond in an informed manner. For the uninitiated, the world of transportation can be confusing and intimidating. As a result, advocates may feel powerless and ultimately surrender, or expend their limited resources in futile battles. Without a clear understanding of how highways happen, the conservation community cannot make effective changes.

*GUTS* seeks to crack the code on transportation and make the process more transparent from beginning to end—everything you always wanted to know about road building, but were afraid to ask. Transportation and resource professionals provided valuable input, as did academics and veteran advocates. By demystifying the world of transportation, we hope to provide conservationists with the necessary foundation for becoming better informed, more effective stakeholders in transportation debates.

*GUTS* is divided into five sections:

**Law, Policy and Governance** describes the legislative and regulatory framework associated with our transportation infrastructure, including the highway bill, funding, research and management of roads on public lands.

**Anatomy of a Road** illustrates the life cycle of a road project, from the planning process to environmental review, through construction and long-term maintenance.

**Natural Environment** provides greater detail about transportation policies and practices specifically related to wildlife, roadside vegetation and aquatic resources.

**Advocacy** outlines helpful hints for conservation advocates and showcases some of the best examples of successful organizations and campaigns.

The **Appendix** provides conservationists with abundant additional information and tools to help work more effectively on this issue locally and nationally.

*GUTS* is not an anti-road call to arms. While we fully respect our colleagues who oppose all highways, it has not been the focus of the Habitat and Highways Campaign and is not the message you'll find in *GUTS*. We are *unapologetically opposed* to an ever-expanding network of highways that fragments and destroys precious, remaining wildlife habitat that is essential to biodiversity conservation. Despite

the heroic efforts of the road-building sector, it is impossible to develop an ecologically benign highway. We enthusiastically support any and all efforts to enhance existing human habitat because it reduces the pressure to build more of it in wildlife habitat.

*GUTS* is not about logging roads or roadless areas. There are many different types of roads, from one-lane, dirt roads to two-lane rural streets to major interstate highways. While the impacts to wildlife may be similar, the development, ownership and management of various types of roads are very different. *GUTS* is focused specifically on public roads and highways, built and maintained by county, state and federal agencies and used by the general driving public.

*GUTS* is not a best practices manual for transportation agencies, it is a guide to *all* practices—the good, the bad, and the ugly—for conservation advocates. We do include several examples of better practices that conservation advocates should be aware of and encourage their transportation agencies to adopt.

*GUTS* is not comprehensive. There is no shortage of information on the subject of transportation and certainly too much to corral into one book. Add wildlife to the equation, and you've got enough information to fill a library. Each chapter could easily be expanded into a full book of its own. In most cases, finding the information was less of a challenge than condensing several hundred pages of information into a few paragraphs. Transportation policy and practice is continually evolving, as is our understanding of wildlife and transportation conflicts. And because transportation policy and practice varies wildly from state to state, you will still need to do your homework on how things are done in your home territory. This book will not eliminate the need for other resources. In fact, we predict it will encourage you to seek out even more.

Finally, *GUTS* is not complete without you. There has never been a better time for conservationists to take our rightful place in this debate. There is much left to learn, but we now have enough information, technology, policy and people to turn the corner on this issue. Even Congress has now recognized the wisdom and the urgency of addressing this crisis. Provisions in the last highway bill gave conservationists the power to tackle wildlife and transportation conflicts at both the local and landscape level. There is also a growing cadre of good people in transportation and resource agencies making progress, but they can't do it alone. Necessary change won't happen without the conservation community, and it won't happen unless we get organized, get involved early in the process and *get up to speed*.

## HOW TO USE THE *GUTS* GUIDE

*Getting Up To Speed* (*GUTS*) was written with you, the conservation advocate in mind—from the novice to the seasoned veteran. There is a lot of information, and it may seem overwhelming, but *GUTS* is organized to put vital information in context to make it easier to understand. If you are the type who likes to read a book from cover to cover, *GUTS* will not disappoint. By starting with the large, overarching subjects and progressing through the process to the specifics, *GUTS* tells a story. If you are the type who likes to just read the parts you need when you need them, *GUTS* is designed to help you quickly find what you're looking for.

Look for the special *GUTS* symbols that direct you to additional information on subjects of particular interest to conservation advocates:



**SAFETEA-LU** directs you to conservation-related information regarding the 2005 highway bill, the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users.



points the way to suggestions for effective advocacy opportunities related to each subject.



**CAUTION** alerts you to potential pitfalls.

*GUTS* also contains many special features to help you navigate the guide and the world of transportation:

**Thumb tabs** are found on the page edges so you can flip to individual sections and chapters.

**Hall of Fame** sections inspire you with some of the best and brightest examples of policy, practice and advocacy for wildlife in transportation.

**You Make the Call** boxes present the hottest topics of debate, followed by representative viewpoints from two opposing perspectives.

**Guest Columns** showcase insight on various topics from experts in the fields of transportation, wildlife and advocacy.

**Quotes** from veteran advocates, transportation and resource professionals are scattered throughout the chapters and give voice to the topics.



# Law, Policy and Governance

## IN THIS SECTION

**Legislation and Regulation** walks you through the history of transportation law and policy in the United States. Starting with the Federal-Aid Highway Act of 1944, through the Interstate Era and our present day TEA bills you can follow the progress from early roads to the juggernaut we know as our highway system. You will also get an overview of all transportation related laws and a quick primer on the Code of Federal Regulations, where these and all our laws are safely kept.

**Transportation Funding** answers the big questions: Where does the money come from? Where does the money go? You'll learn about gas tax and how the Highway Trust Fund pays for our highways.

**Transportation Research** describes the many and varied institutions of transportation research, including who does it, where you can find results and how conservationists can contribute.

**Public Roads and Public Lands** introduces you to the agencies and policies that control public roads and alternative transportation choices in our public lands.

**Resources** are found at the end of each chapter, giving you a handy guide to other valuable sources on the chapter topic.

**The Appendix** is chock full of additional resources such as a Who's Who on transportation professionals and groups, a what's what on road types, acronyms, websites, listservs and other gold-mines of information you may want to refer to as you are reading the chapters.

*GUTS* is all about learning new lingo. Transportation is a very jargon-heavy field and you will be learning a lot of new terminology. You will also find that transportation professionals rely heavily on the use of acronyms. In fact, many acronyms are used so frequently they are considered words themselves and replace the words they represent. Here is a short list of the most frequently used acronyms:

FHWA	Federal Highway Administration
USFWS or FWS	United States Fish and Wildlife Service
SAFETEA-LU	Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users
MPO	Metropolitan Planning Organization
AASHTO	American Association of State Highway and Transportation Officials
TRB	Transportation Research Board
FLHP	Federal Lands Highway Program
L RTP	Long-range transportation plan
STIP	Statewide Transportation Improvement Plan
NEPA	National Environmental Policy Act
EIS	Environmental Impact Statement

*GUTS* is also available online at <http://www.gettinguptospeed.org>