Building Unique Templates with Custom Post Types (CPT) in WordPress

Madison PHP Conference 2017
https://joind.in/talk/e4043

Hi, I'm Andrea

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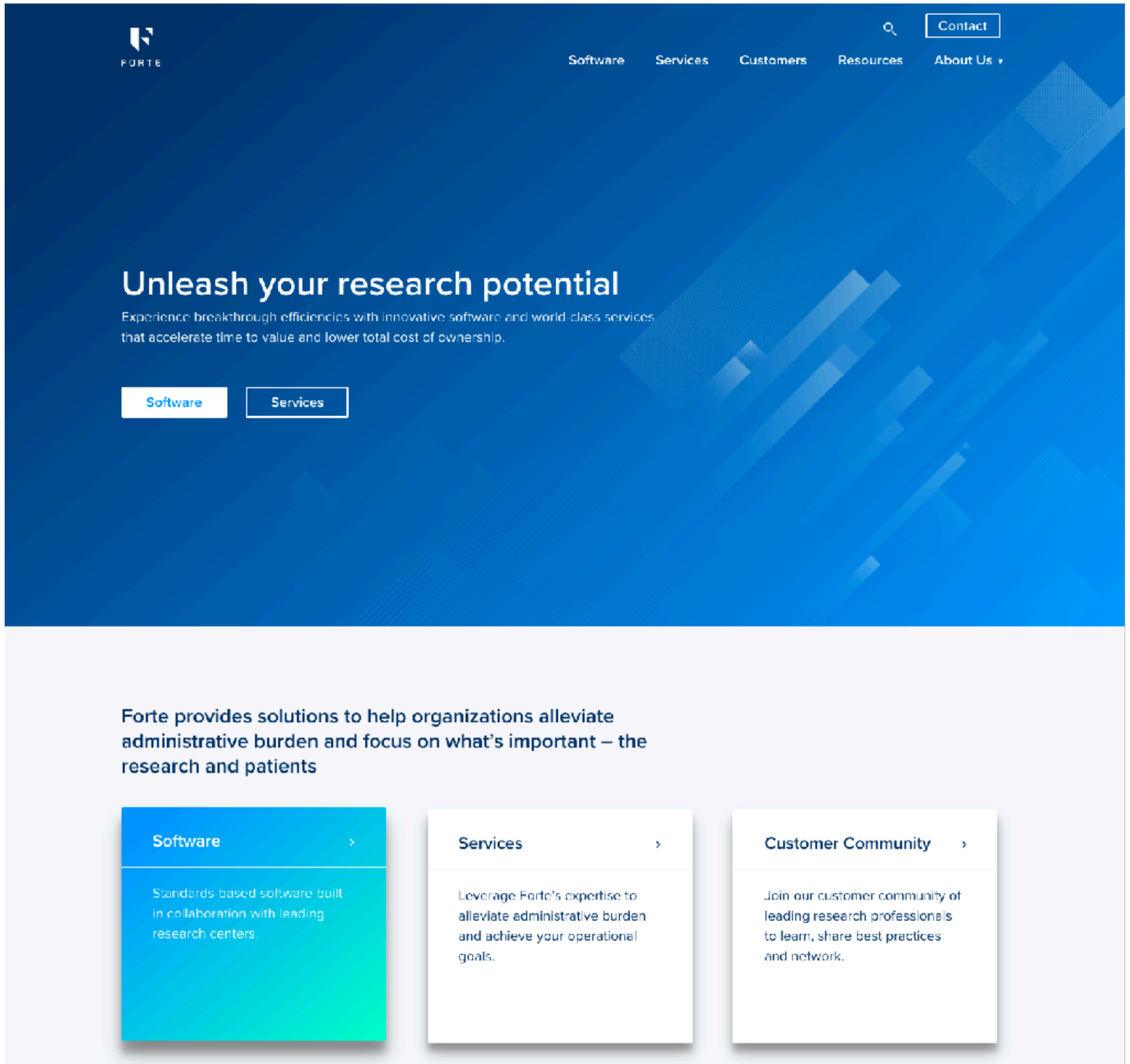
Twitter: @andreaincode

Slides & Feedback:
https://joind.in/talk/e4043

I’m the Web Developer & Designer at Forte in Madison, WI

We launched a redesign of our flagship website forteresearch.com on August 25th.

It’s built on WordPress.



spacer.gif

(I’ve been working on the web for a a long time)

“WordPress is just a blogging platform.”

– me, a while back

“WordPress themes and plugins are bloated and hard to work with.”

– me, not that long ago

but Custom Post Types have opened my eyes.

“WordPress is a great tool to build a custom website!”

– me, today

Why use Custom Post Types?

- Create a better content entry experience for the CMS administrators
- Lighten up your database by removing the HTML from the WordPress editor
- Develop custom layouts specific to your data
- Ability to query and sort your custom data

Possible uses for CPT

- Testimonials
- Webinars
- eBooks
- Advertisements
- Job Postings
- Conference Sessions
- Portfolio Pieces
- Content Carousels

WisconsinVerbs.com theme from this talk

(Pardon the sandbox)

Theme

https://github.com/andreawetzel/WisconsinVerbsThemeV01

Plugin (Gist)

bit.ly/wi-verbs-cpt

CPT Steps:

1. First, create your Custom Post Type
2. Next, add some data in your WordPress admin panel
3. Third, template your custom theme page to display the data

1. Creating Custom Post Types

…by adding code to your theme's functions.php

For example, see line 191:
https://github.com/andreawetzel/WisconsinVerbsThemeV01/blob/master/functions.php

```php
<?php

  add_action( 'init', 'create_post_type' );
  function create_post_type() {
    register_post_type( 'acme_product', // Your Custom Post Type
      array(
        'labels' => array(
          'name' => __( 'Products' ),
          'singular_name' => __( 'Product' )
        ),
        'public' => true, // Public single page? True = yes
        'has_archive' => true, // Post type archive listing? True = yes
      )

```

Add CPT directly in functions.php

https://codex.wordpress.org/Post_Types#Custom_Post_Types

```
25      register_post_type( 'wiverb_hike',
26        array(
27          'labels' => array(
28              'name' => __( 'Hiking Trails' ),
29              'singular_name' => __( 'Hiking Trail' ),
30              'add_new_item' => __('Add New Trail'),
31              'edit_item' => __('Edit Trail'),
32              'new_item' => __('New trail'),
33              'view_item' => __('View trail'),
34              'search_items' => __('Search trails'),
35              'not_found' => __('No trails were found'),
36              'not_found_in_trash' => ('No trails found in trash')
37          ),
38          'public' => true,
39          'show_in_menu' => true,
40          'exclude_from_search' => true,
41          'has_archive' => true,
42          'supports' => array('title', 'editor', 'thumbnail', 'revisions', 'page-attributes'),
43          'menu_icon' => 'dashicons-location-alt',
44        )
45      );
```

More Custom Post Type Settings

https://codex.wordpress.org/Function_Reference/register_post_type

supports

```
'supports' => array('title', 'editor', 'thumbnail', 'revisions', 'page-attributes'),
```

Why rebuild the wheel when you can use built-in WP Functionality?

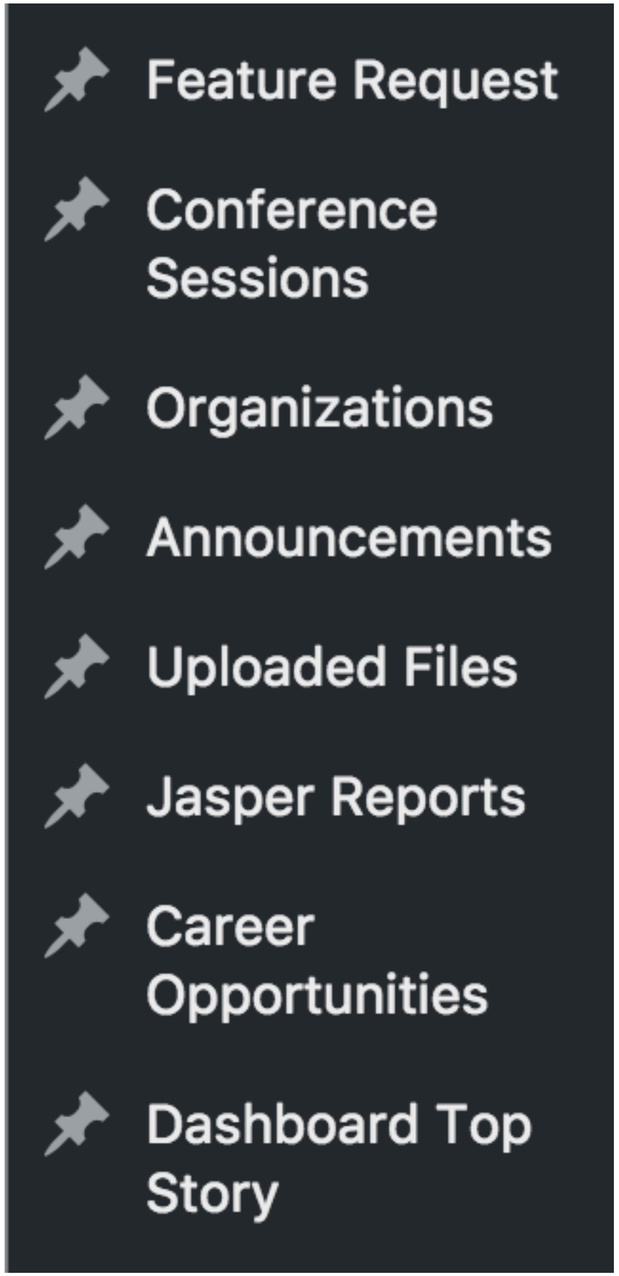
- **thumbnail** (Featured Image)
- **page-attributes** (To set a custom order)
- **revisions** (Save your revisions in the DB)

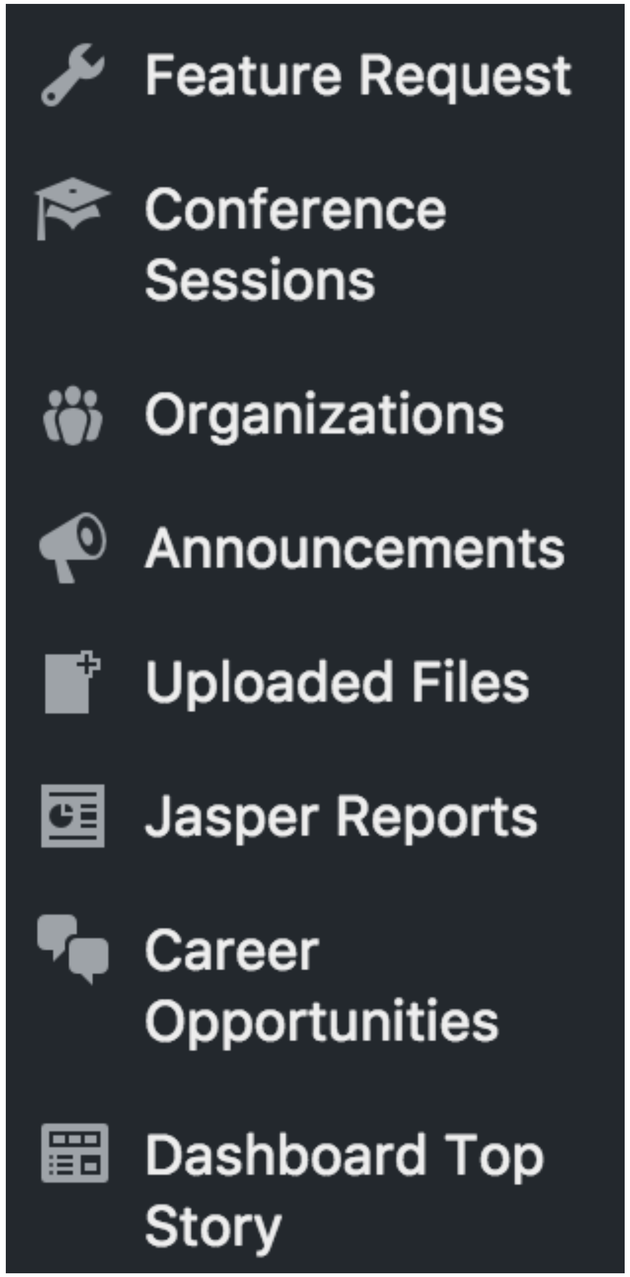
menu_icon

No more pushpins please.

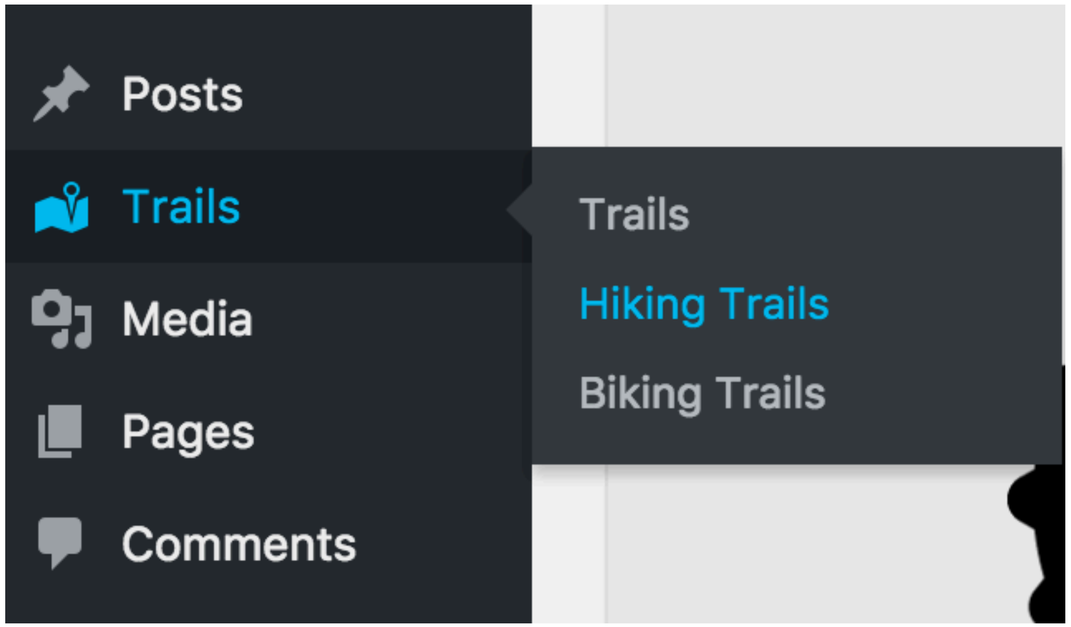
https://developer.wordpress.org/resource/dashicons

- **Roll your own**
  `'get_template_directory_uri() . "youricon.png"'`
- **Use a Dashicon**
  `'menu_icon' => 'dashicons-clipboard'`


Feature Request
Conference Sessions
Organizations
Announcements
Uploaded Files
Jasper Reports
Career Opportunities
Dashboard Top Story


Feature Request
Conference Sessions
Organizations
Announcements
Uploaded Files
Jasper Reports
Career Opportunities
Dashboard Top Story

What if you have lots of Custom Post Types?



Nesting your CPT in the Admin Panel

```
register_post_type( 'not_in_menu',
...
    'public' => true,
    'has_archive' => true,
    'show_in_menu' => false,

...)
```

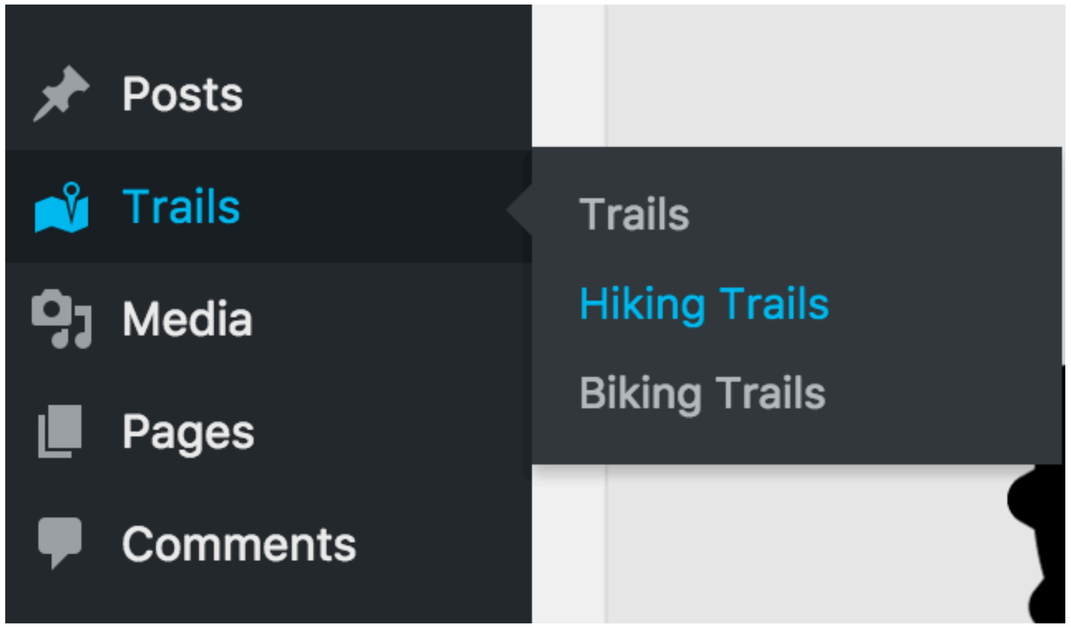
Nesting your CPT in the Admin Panel

First, don’t show the Post Type in the menu itself

```
76
77  if(!function_exists('wiverbs_trails_menu')) {
78    /**
79     * Adds admin nav & subnav
80     */
81    function wiverbs_trails_menu() {
82      add_menu_page( 'Trails', 'Trails', 'edit_posts', 'wiverbs_trails',
    •     'wiverbs_trails_page', 'dashicons-location-alt', 5 );
83
84      add_submenu_page('wiverbs_trails', 'Hiking Trails', 'Hiking Trails',
    •     'edit_posts', 'edit.php?post_type=wiverb_hike');
85
86      add_submenu_page('wiverbs_trails', 'Biking Trails', 'Biking Trails',
    •     'edit_posts', 'edit.php?post_type=wiverb_bike');
87    }
88    add_action( 'admin_menu', 'wiverbs_trails_menu' );
89  }
90
```

Nesting your CPT in the Admin Panel

https://codex.wordpress.org/Administration_Menus for more information

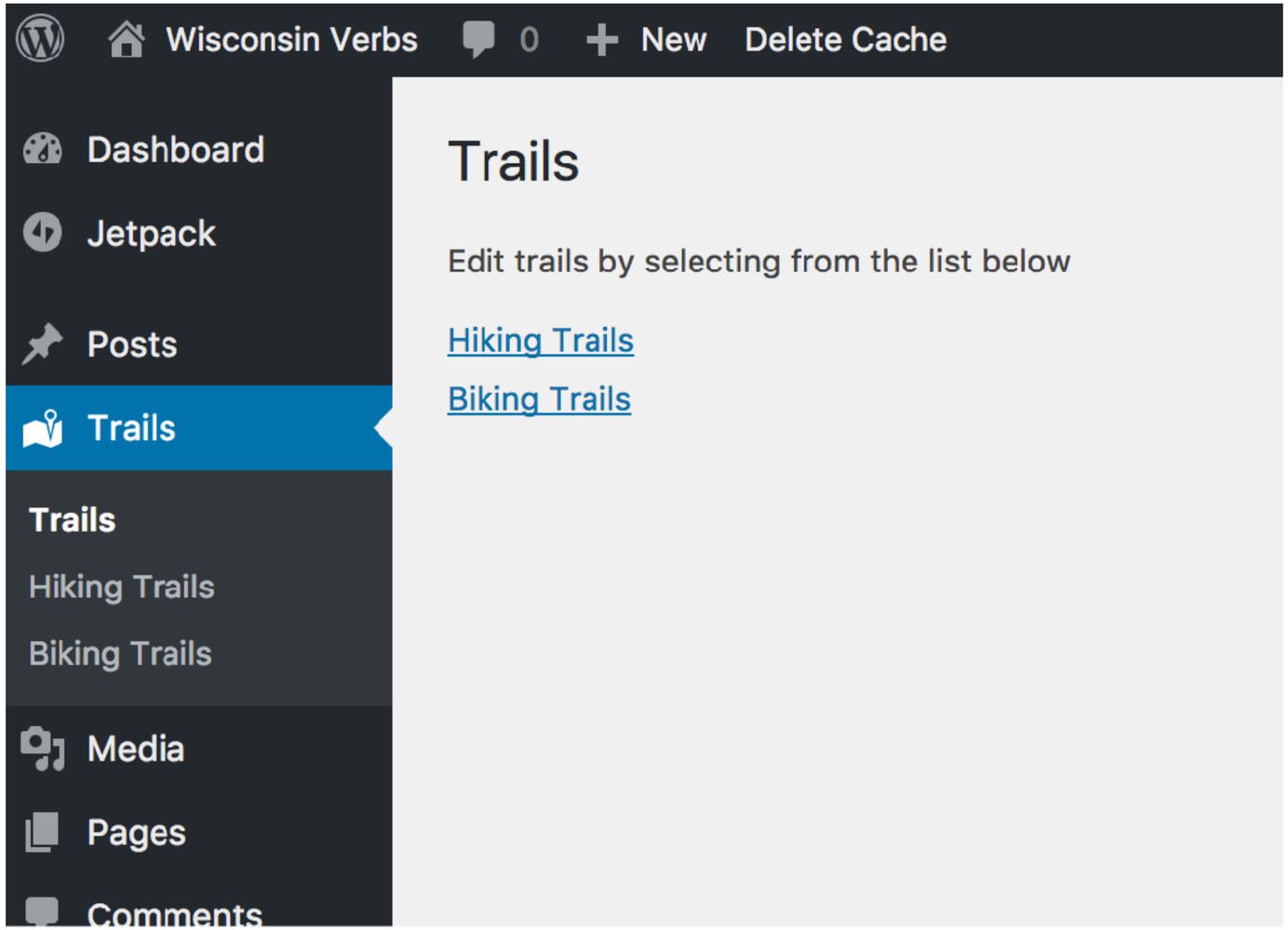


Nesting your CPT in the Admin Panel

```
91  if(!function_exists('wiverbs_trails_page')) {
92    /**
93     * Add content to the admin trails top-level page
94     */
95    function wiverbs_trails_page() {
96      if ( !current_user_can( 'edit_posts' ) )  {
97        wp_die( __( 'You do not have sufficient permissions to access this page.' ) );
98      }
99      echo '<div class="wrap">';
100     echo '<h2>Trails</h2><p>Edit trails by selecting from the list below';
101     echo '<ul>';
102     echo '<li><a href="'. home_url()
      .'/wp-admin/edit.php?post_type=wiverb_hike">Hiking Trails</a></li>';
103     echo '<li><a href="'. home_url()
      .'/wp-admin/edit.php?post_type=wiverb_bike">Biking Trails</a></li>';
104     echo '</ul>';
105     echo '</div>';
106   }
107 }
108
```

Nesting your CPT in the Admin Panel

https://codex.wordpress.org/Administration_Menus



Nesting your CPT in the Admin Panel

https://codex.wordpress.org/Administration_Menus

Custom Subdirectories

To achieve the url:
http://wisconsinverbs.com/trails/hiking/

```
'rewrite' => array( 'slug' => 'trails/hiking' ),

'has_archive' => ‘trails/hiking'
```

Custom Subdirectories: REMINDER

***Remember to flush/rebuild your permalinks after this change**

Either manually or by adding a flush to your theme
or plugin activation

https://codex.wordpress.org/Function_Reference/flush_rewrite_rules

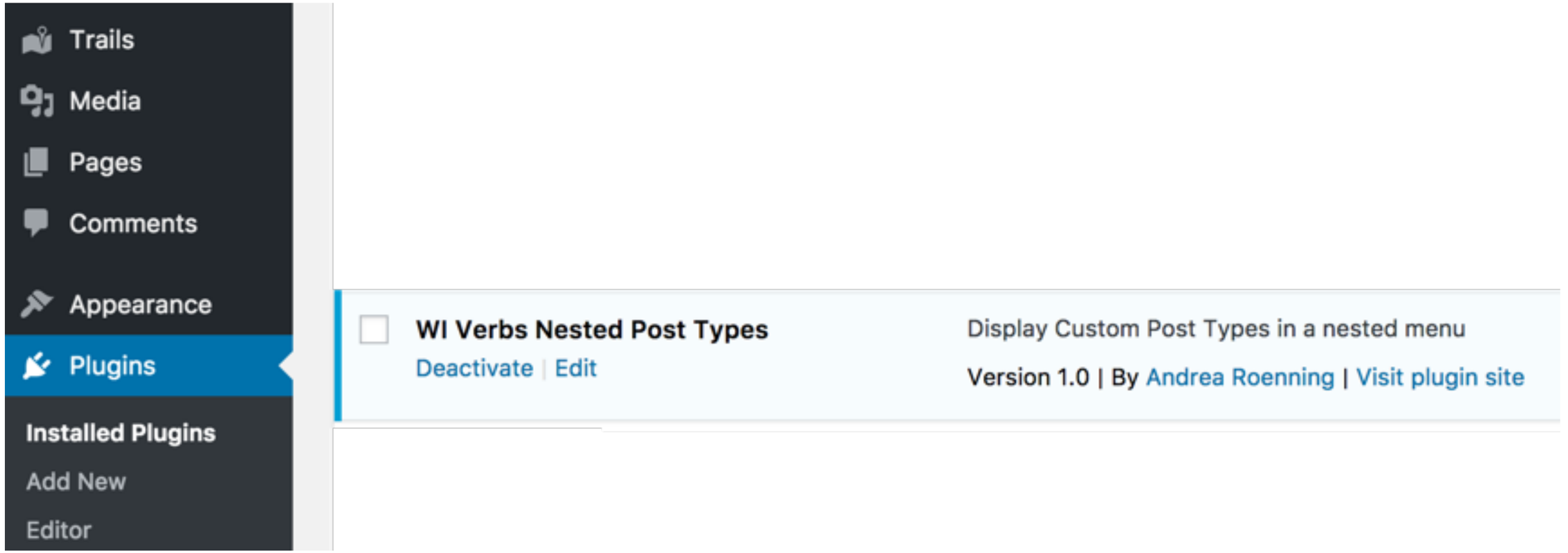
But what if you change themes?

1. Creating Custom Post Types

…you could build your CPT code into a custom plugin.

example plugin gist on GitHub

bit.ly/wi-verbs-cpt



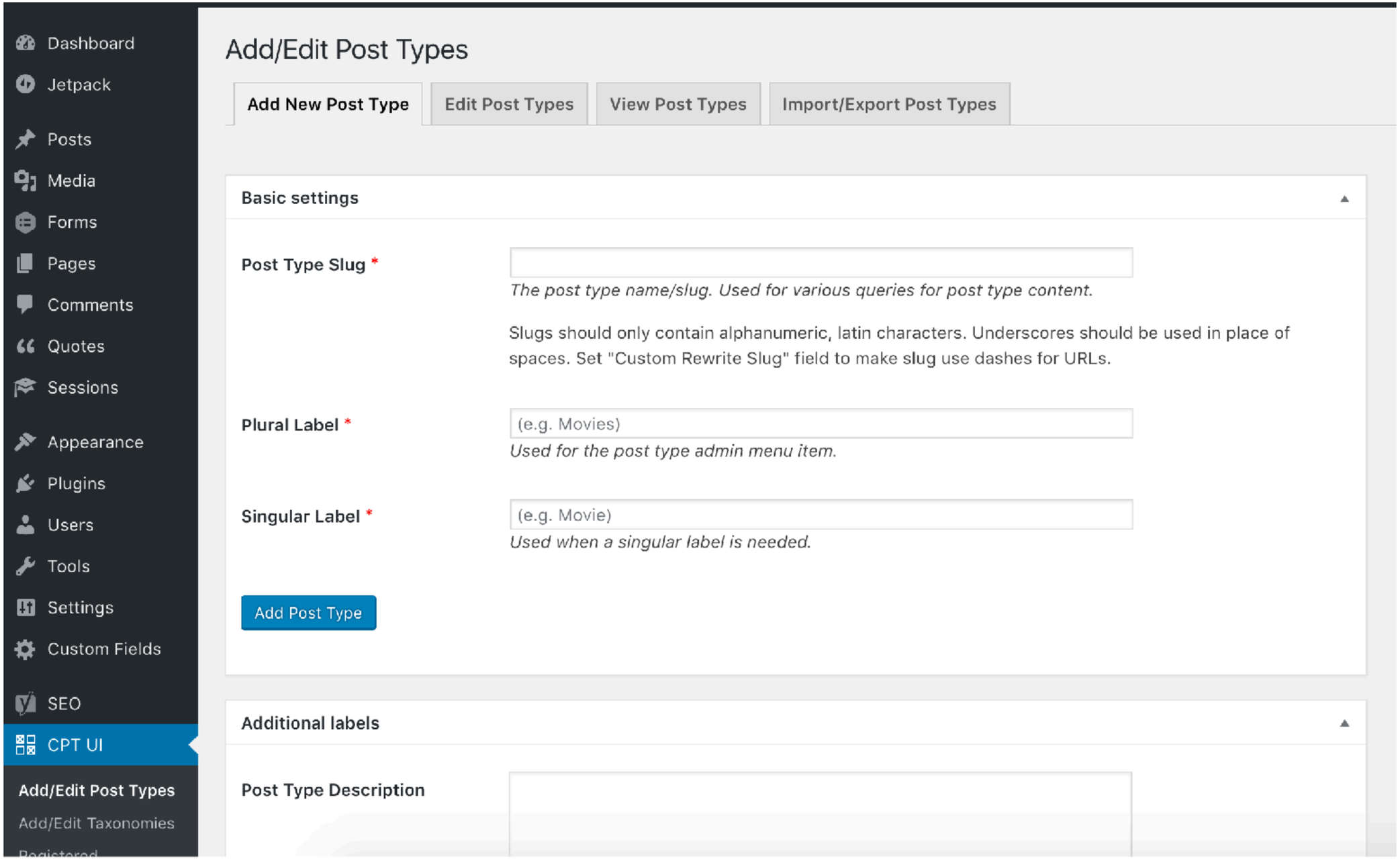
Creating CPT Manually: Create a Plugin

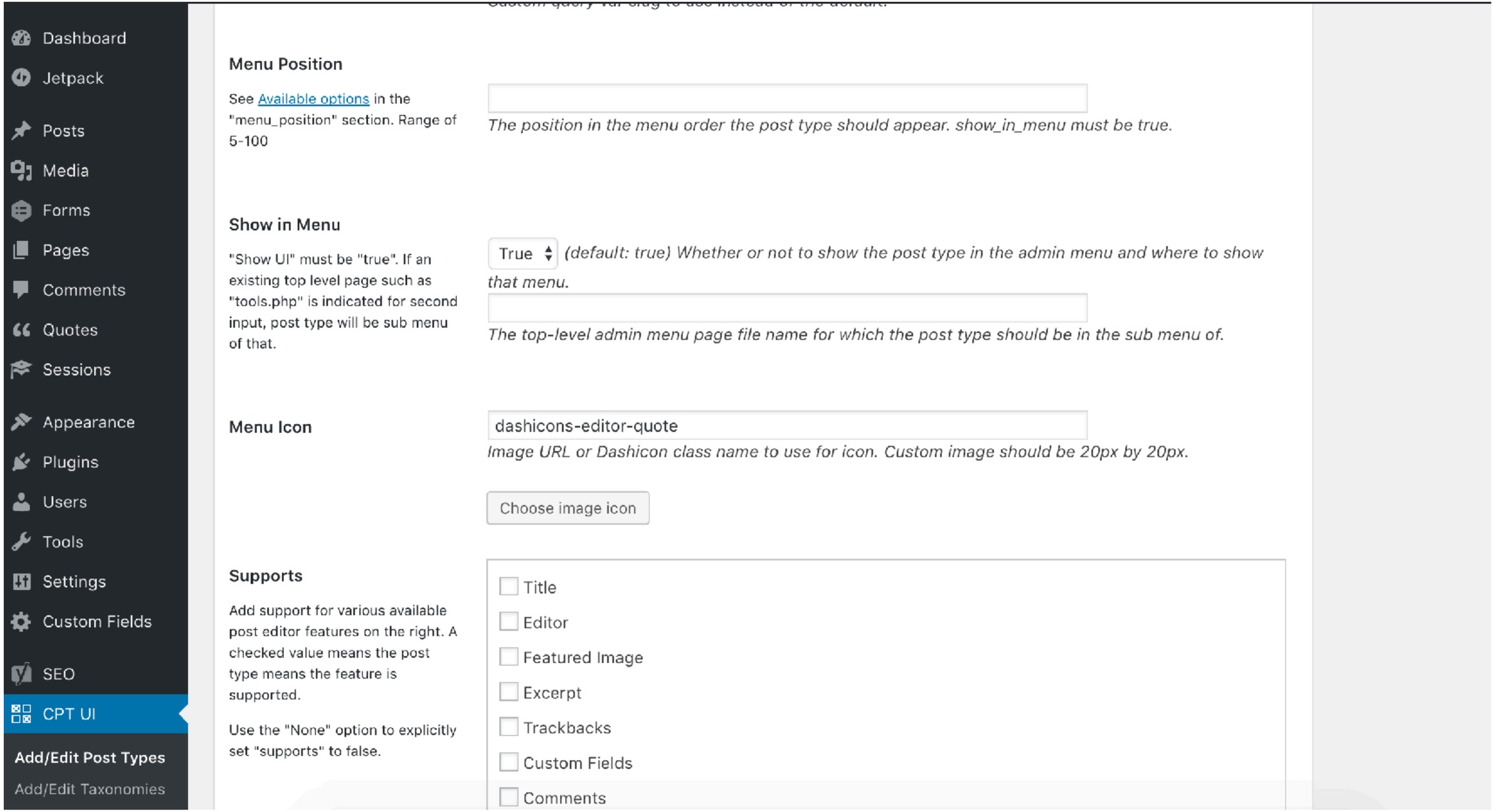
https://developer.wordpress.org/plugins/the-basics/header-requirements/

1. Creating Custom Post Types

…you could use a third party Custom Post Type management plugin.

My Pick: CPT UI
https://wordpress.org/plugins/custom-post-type-ui


Dashboard
Jetpack
Posts
Media
Forms
Pages
Comments
Quotes
Sessions
Appearance
Plugins
Users
Tools
Settings
Custom Fields
SEO
CPT UI
Add/Edit Post Types
Add/Edit Taxonomies
Add/Edit Post Types
Add New Post Type
Edit Post Types
View Post Types
Import/Export Post Types
Basic settings
Post Type Slug *
The post type name/slug. Used for various queries for post type content.
Slugs should only contain alphanumeric, latin characters. Underscores should be used in place of spaces. Set "Custom Rewrite Slug" field to make slug use dashes for URLs.
Plural Label *
(e.g. Movies)
Used for the post type admin menu item.
Singular Label *
(e.g. Movie)
Used when a singular label is needed.
Add Post Type
Additional labels
Post Type Description


Dashboard
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Quotes
Sessions
Appearance
Plugins
Users
Tools
Settings
Custom Fields
SEO
CPT UI
Add/Edit Post Types
Add/Edit Taxonomies
Menu Position
See Available options in the "menu_position" section. Range of 5-100
The position in the menu order the post type should appear. show_in_menu must be true.
Show in Menu
"Show UI" must be "true". If an existing top level page such as "tools.php" is indicated for second input, post type will be sub menu of that.
True
(default: true) Whether or not to show the post type in the admin menu and where to show that menu.
The top-level admin menu page file name for which the post type should be in the sub menu of.
Menu Icon
dashicons-editor-quote
Image URL or Dashicon class name to use for icon. Custom image should be 20px by 20px.
Choose image icon
Supports
Add support for various available post editor features on the right. A checked value means the post type means the feature is supported.
Use the "None" option to explicitly set "supports" to false.
Title
Editor
Featured Image
Excerpt
Trackbacks
Custom Fields
Comments

CPT Steps:

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Wisconsin Verbs 0 New Delete Cache Howdy, Andrea Roenning

Dashboard
Jetpack
Posts
Trails
Media
Pages
Comments
Appearance
Plugins
Users
Tools
Settings
Custom Fields
Instagram Feed
Collapse menu

Screen Options

Edit Trail Add New

Pheasant Branch Conservancy

Permalink: http://localhost/WisconsinVerbs/trails/hiking/pheasant-branch-conservancy/ Edit

Add Media

Visual Text

b i link b-quote del ins img ul ol li code more close tags ¶

```
<p>The 550-acre conservancy protects Pheasant Branch Creek, which supplies Lake Mendota with 1,800 gallons of crystal-clear water every minute. Visitors will find nature trails running throughout this oasis of pristine woods and wetlands.</p>
```

Word count: 32 Last edited by Andrea Roenning on June 24, 2017 at 11:55 am

Publish

Preview Changes

Status: **Published** Edit

Visibility: **Public** Edit

Published on: **Jun 24, 2017 @ 11:55** Edit

Move to Trash Update

Post Attributes

Featured Image

Click the image to edit or update

What if you want more fields than WordPress’s title & description?

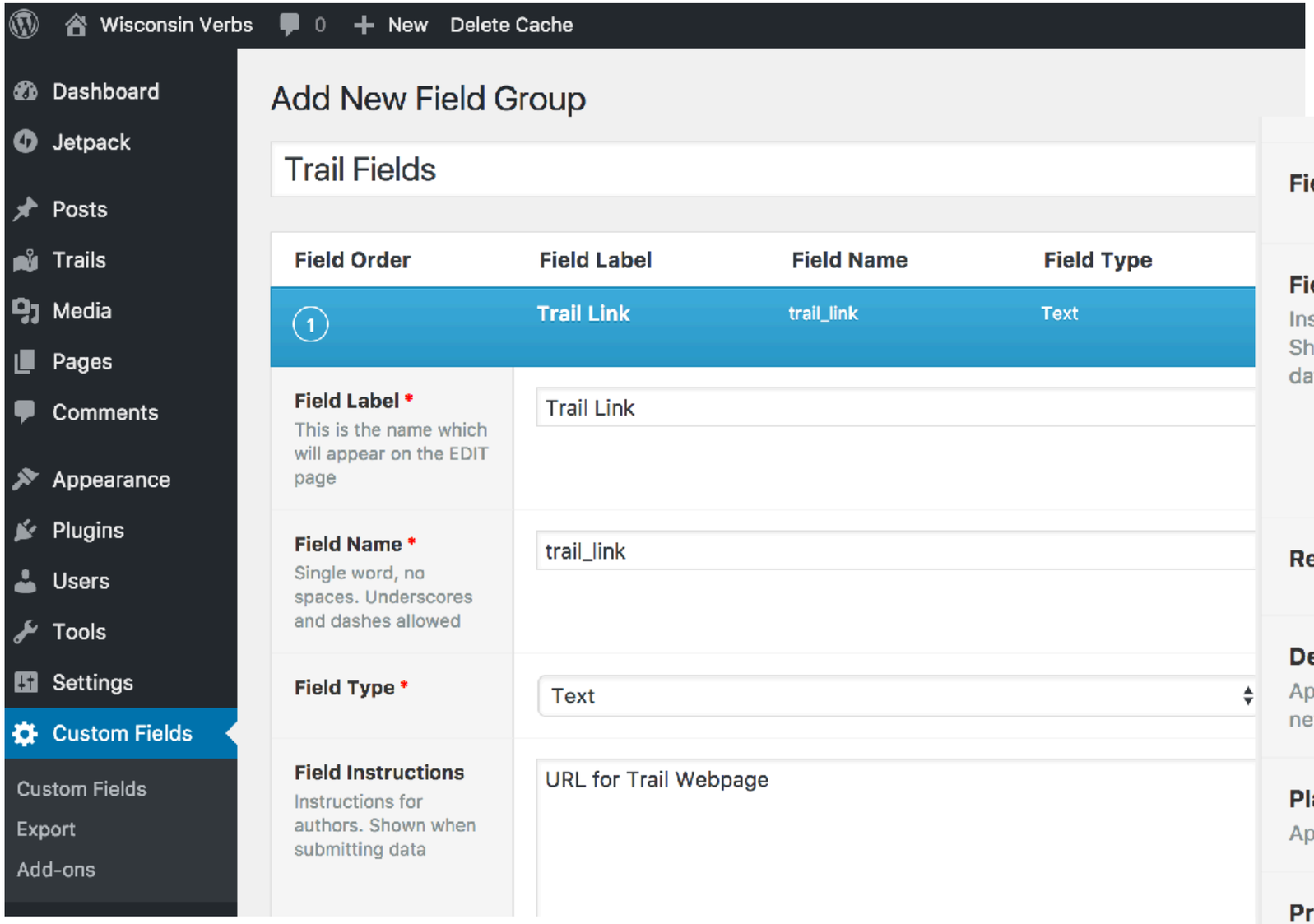
Custom Fields

- Core WordPress Custom Fields

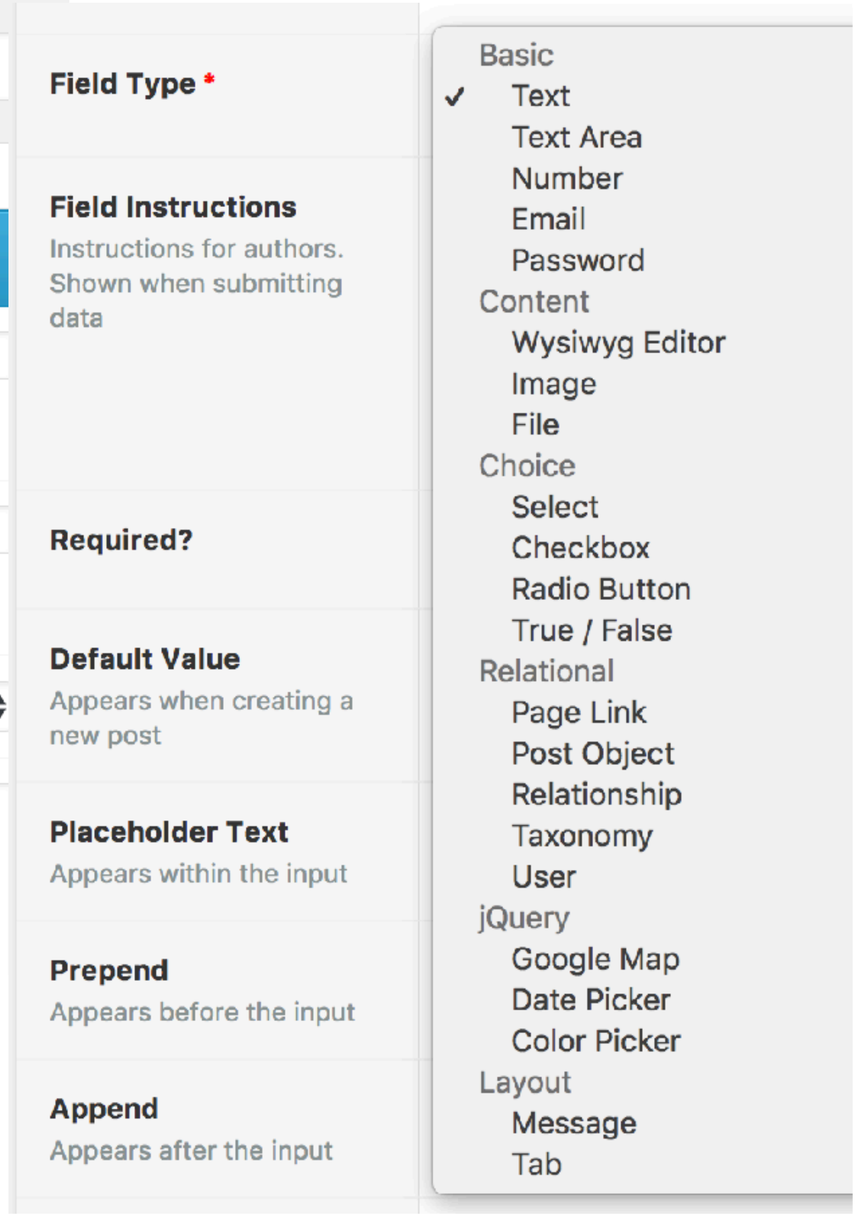
  https://codex.wordpress.org/Custom_Fields

- Advanced Custom Fields Plugin (ACF)

  https://www.advancedcustomfields.com

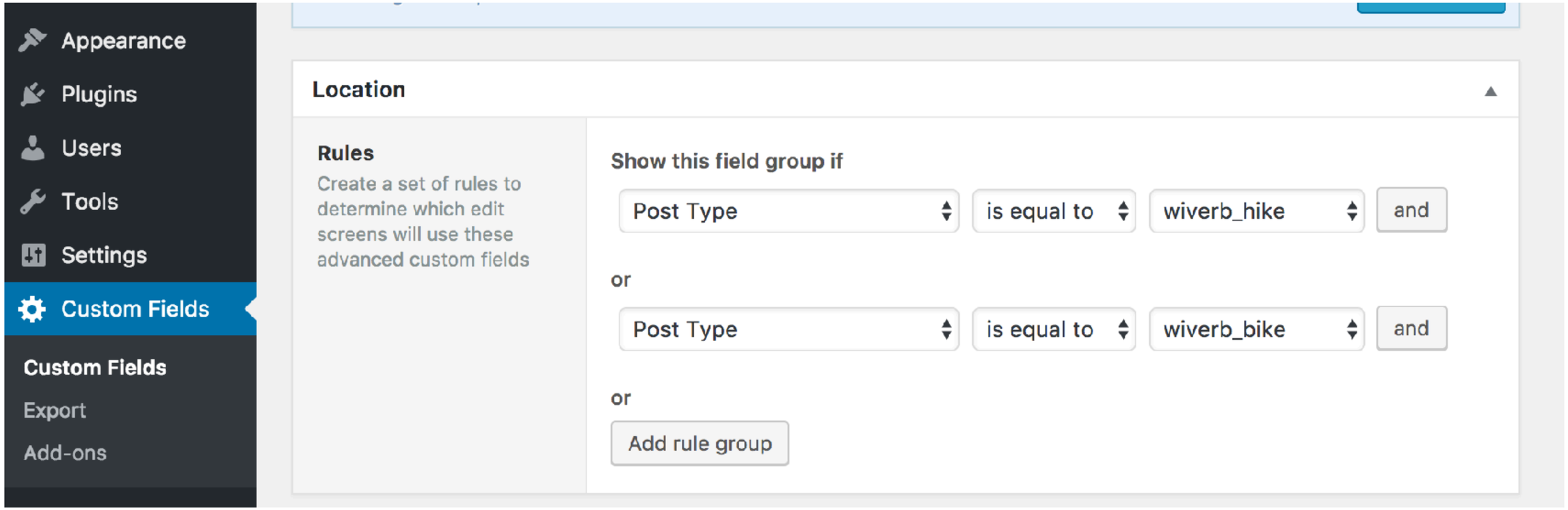


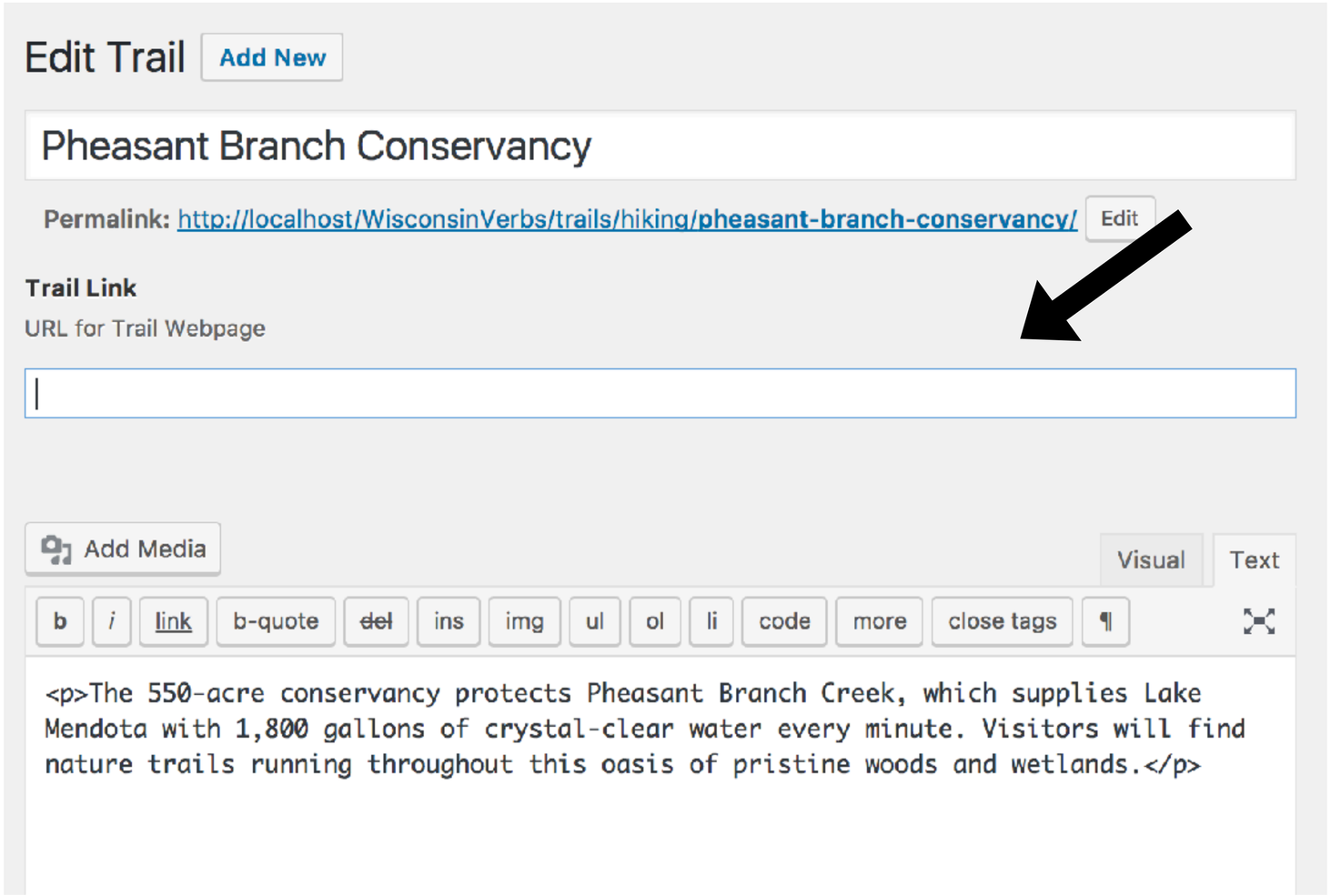
Standard field types



ACF Plugin admin (Free version)

ACF Plugin: Assign custom fields to your Custom Post Type locations



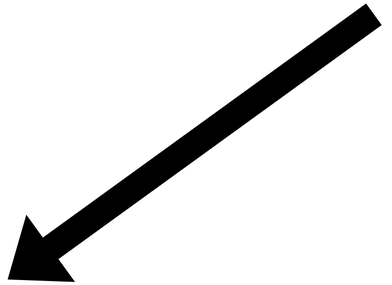



```
<?php the_field('trail_link'); ?>
```

ACF Plugin

```
7           <div class="row">
8             <div class="col-md-6">
9               <h1>Bike Trail: <?php the_title(); ?></h1>
10              <?php the_content(); ?>
11
12              <p>
13                <a href="<?php the_field('trail_link'); ?>">
14                  <?php the_field('trail_link'); ?>
15                </a>
16              </p>
17
18              <?php
19
20              $trail_link = get_field('trail_link');
21
22              if ($trail_link) {
23                echo ('<p><a href="' . $trail_link . '">' . $trail_link. '</a></p>');
24              }
25
26              ?>
27
```

or



ACF Plugin

*This just scratches the surface of developing themes using custom fields.

https://www.advancedcustomfields.com

CPT Steps:

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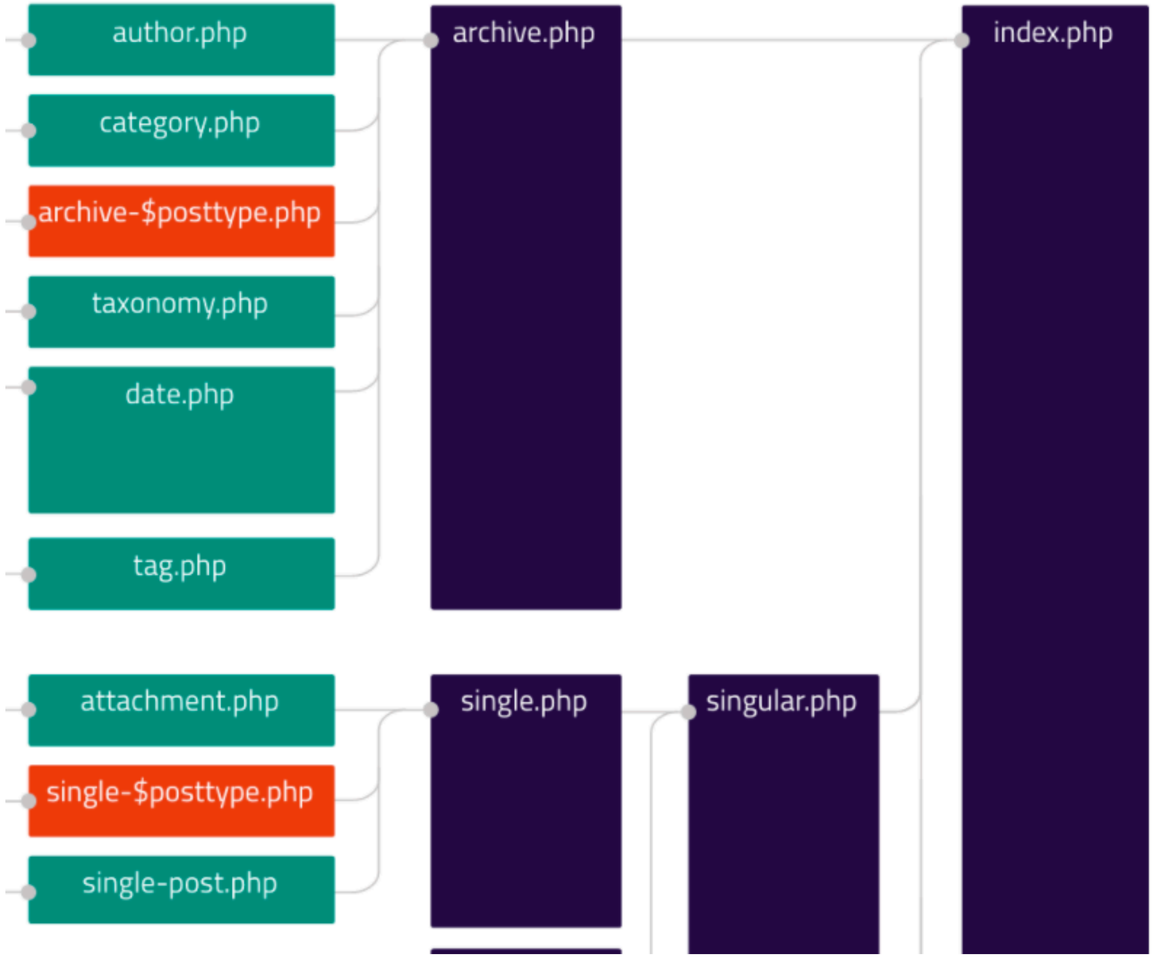
WordPress Template Hierarchy

If your CPT is set 'public' => true, your content will display on one of your default WordPress template pages such as index.php or single.php

https://developer.wordpress.org/themes/basics/template-hierarchy

WordPress Template Hierarchy

https://developer.wordpress.org/themes/basics/template-hierarchy



index.php is the default

WordPress Template Hierarchy

This is easily overridden by creating a single-**your_post_type**.php page.

The same concept applies for your archive page.

https://developer.wordpress.org/themes/basics/template-hierarchy

Blog About Contact

Hiking Trail: Pheasant Branch Conservancy

The 550-acre conservancy protects Pheasant Branch Creek, which supplies Lake Mendota with 1,800 gallons of crystal-clear water every minute. Visitors will find nature trails running throughout this oasis of pristine woods and wetlands.

More Hiking Trails

```
get_post_type_archive_link( 'wiverb_hike' );
```

Using **single-wiverb_hike.php** to display **wiverb_hike** CPT

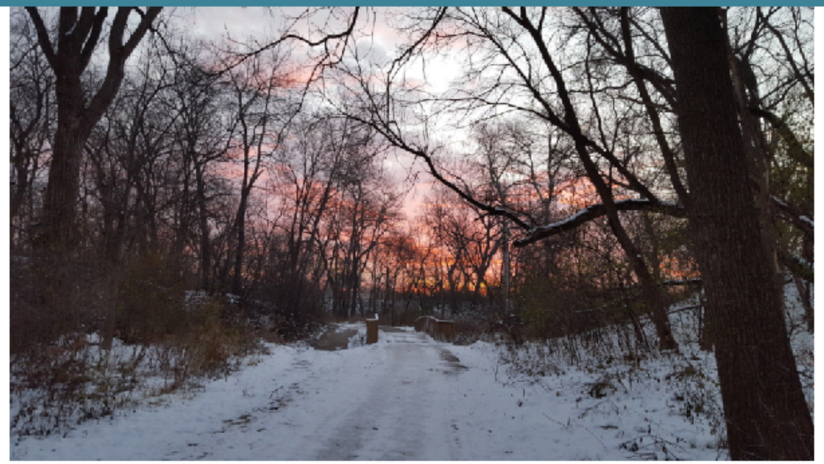
single-wiverb_hike.php

```php
<?php get_header(); ?>
<div class="container">
  <div class="row">
    <div class="col-xs-12 blog-post-single add-btm-margin">
    <?php if (have_posts()) : while (have_posts()) : the_post(); ?>
      <section <?php post_class() ?> id="post-<?php the_ID(); ?>">
        <div class="row">
          <div class="col-md-6">
            <h1>Hiking Trail: <?php the_title(); ?></h1>
            <?php the_content(); ?>
          </div>
          <div class="col-md-6">
            <?php
            if ( has_post_thumbnail() ) { ?>
              <a href="<?php the_permalink(); ?>"> <?php the_post_thumbnail('medium'); ?></a>
           <?php }  ?>
          </div>
          <div class="col-xs-12">
            <p><a href="<?php echo get_post_type_archive_link( 'wiverb_hike' ); ?>">
                More Hiking Trails
            </a></p>
          </div>
        </div>
      </section>
    <?php endwhile; endif; ?>
    </div>
  </div>
</div>
<?php get_footer(); ?>

```

Blog About Contact

HIKING TRAILS



Pheasant Branch Conservancy

Indian Lake County Park

Using **archive-wiverb_hike.php**

https://github.com/andreawetzel/WisconsinVerbsThemeV01

Querying Custom Post Types in a Page

If you want to display data from your Custom Post Types on a WordPress page, you can create a second WP_Query call and loop through it.

Loop Example

https://codex.wordpress.org/Post_Types#Querying_by_Post_Type

Setting Parameters

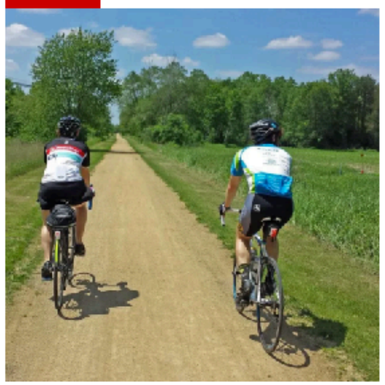
https://codex.wordpress.org/Class_Reference/WP_Query#Multiple_Loops

Blog Trails About Contact

TRAILS

Here are some local trails

Bike

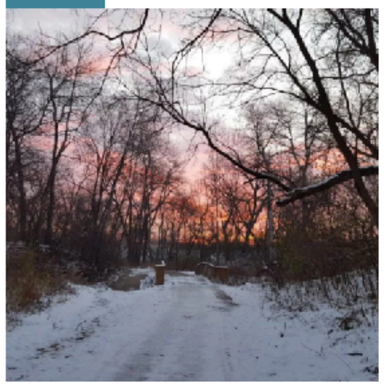


Badger State Trail

Hike

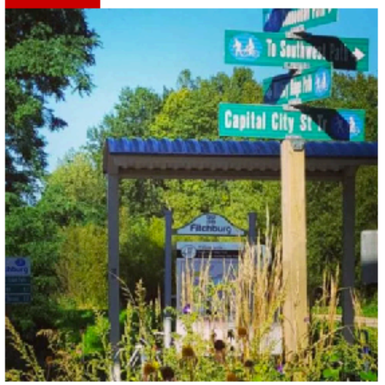
Indian Lake County Park

Hike



Pheasant Branch Conservancy

Bike



Southwest Commuter Path

Using **template-trails.php**

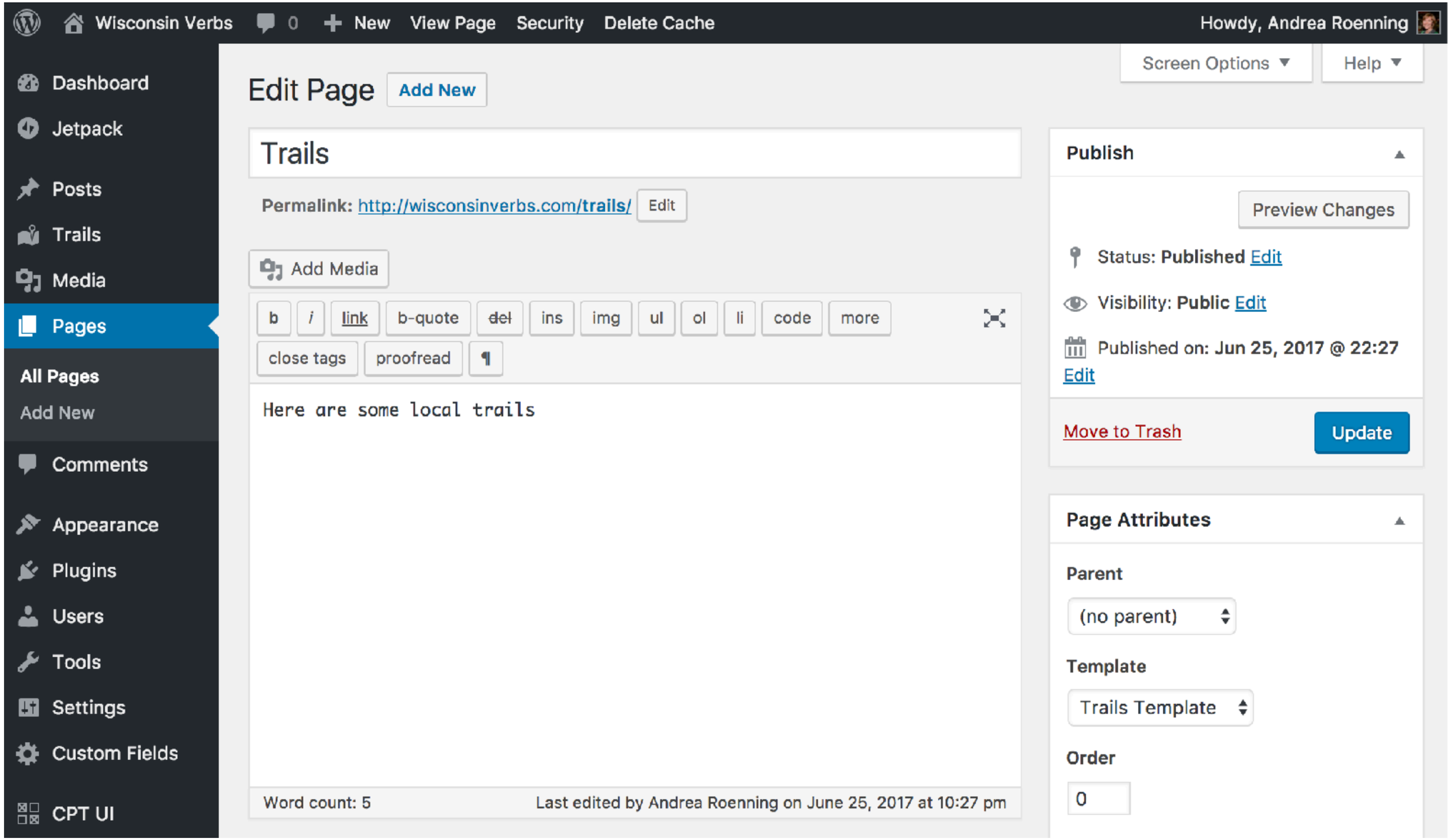
template-trails.php

```php
<?php
/*
**Template Name: Trails Template
*/
?>

<?php get_header(); ?>
<div class="title-bg hero-title-bg">
  <div class="container">
    <div class="row">
      <div class="archive-leader col-sm-12">
        <h1><?php wp_title( '' ); ?></h1>
      </div>
    </div>
  </div>
</div>
<div class="container">
  <div class="row">
    <div class="col-md-8">
      <div class="page-content">
        <?php if ( have_posts() ) : while ( have_posts() ): the_post();
          // Display page content as intro
        ?>
        <?php the_content(); ?>
        <?php endwhile; endif; ?>
        <? wp_reset_postdata(); ?>
      </div>
    </div>
  </div>
```

template-trails.php

```
30
31    <?php
32    // Second query to display hiking and biking trails
33    $args = array( 'post_type' => array('wiverb_hike', 'wiverb_bike'), 'posts_per_page' => '6',
      'orderby' => 'title', 'order' => 'asc' );
34    $query2 = new WP_Query( $args );
35
36    if ( $query2->have_posts() ) { ?>
37    <div class="row">
38    <?php while ( $query2->have_posts() ) {
39      $query2->the_post();
40      $postType = get_post_type(get_the_ID());
41      switch($postType){
42       case 'wiverb_hike':
43          $postTypeText = 'Hike';
44          $postTypeClass = 'bg-blue';
45          break;
46       case 'wiverb_bike':
47          $postTypeText = 'Bike';
48          $postTypeClass = 'bg-red';
49          break;
50       } ?>
51     <div class="col-sm-3">
52      <div class="trl-tag <?php echo $postTypeClass ?>"><?php echo $postTypeText; ?></div>
53      <div><a href="<?php echo get_the_permalink($query2->post->ID);?>">
54        <?php echo get_the_post_thumbnail($query2->post->ID, 'thumbnail') ?>
55      </a></div>
56     <div class="trl-link"><a href="<?php echo get_the_permalink($query2->post->ID);?>">
57        <?php echo get_the_title($query2->post->ID); ?>
58     </a></div>
59     </div>
60     <?php } //End While
61      wp_reset_postdata(); ?>
62    </div>
63    <?php } //End if ?>
64  </div>
65  <?php get_footer(); ?>
66
```


Wisconsin Verbs
0
New
View Page
Security
Delete Cache
Howdy, Andrea Roenning
Dashboard
Jetpack
Posts
Trails
Media
Pages
All Pages
Add New
Comments
Appearance
Plugins
Users
Tools
Settings
Custom Fields
CPT UI
Screen Options
Help
Edit Page
Add New
Trails
Permalink: http://wisconsinverbs.com/trails/
Edit
Add Media
b
i
link
b-quote
del
ins
img
ul
ol
li
code
more
close tags
proofread
¶
Here are some local trails
Word count: 5
Last edited by Andrea Roenning on June 25, 2017 at 10:27 pm
Publish
Preview Changes
Status: Published Edit
Visibility: Public Edit
Published on: Jun 25, 2017 @ 22:27
Edit
Move to Trash
Update
Page Attributes
Parent
(no parent)
Template
Trails Template
Order
0

…you could make a shortcode to display your CPT content on multiple pages

```
[template part="template-part-hello"]
```

https://github.com/halfempty/template-part-shortcode

30 lines (23 sloc) | 649 Bytes

Raw | Blame | History

```php
<?php
/*
Plugin Name: Template Part Shortcode
Plugin URI: https://github.com/halfempty/template-part-shortcode
Description: A (very) simple WordPress plugin for embedding template parts in your content.
Version: 0.1
Author: Marty Spellerberg
Author URI: http://martyspellerberg.com
License: GPLv2 or later
*/

function template_part_shortcode( $atts ) {

        extract( shortcode_atts( array(
                'part' => '',
        ), $atts ) );

        $file = locate_template('parts/' . $part . '.php');

    ob_start();
    include $file;
    $template = ob_get_contents();
    ob_end_clean();
    return $template;

}
add_shortcode( 'template', 'template_part_shortcode' );

?>
```

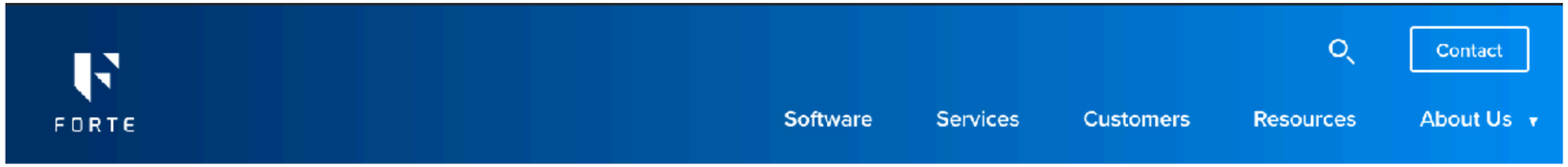
So, to recap

1. First, create your Custom Post Type
   - Use the theme’s functions.php
   - Custom Plugin
   - Third Party Plugin
2. Next, add some data in your WordPress admin panel
   - This is the easy part
3. Third, template your custom theme page to display the data
   - Create a custom single or archive page
   - Use a second WP_Query call
   - Consider using a shortcode for easy access to your content

Custom Post Types in the wild

A simple case: Upcoming conference listing

https://forteresearch.com/contact-us/see-us-at



Upcoming Events:

Interested in meeting with us in person at an upcoming conference? Please reach out to us at media@forteresearch.com.

Fall Onsemble Conference 2017

September 19 - 22, 2017

Monona Terrace, Madison, Wisconsin

Learn more →

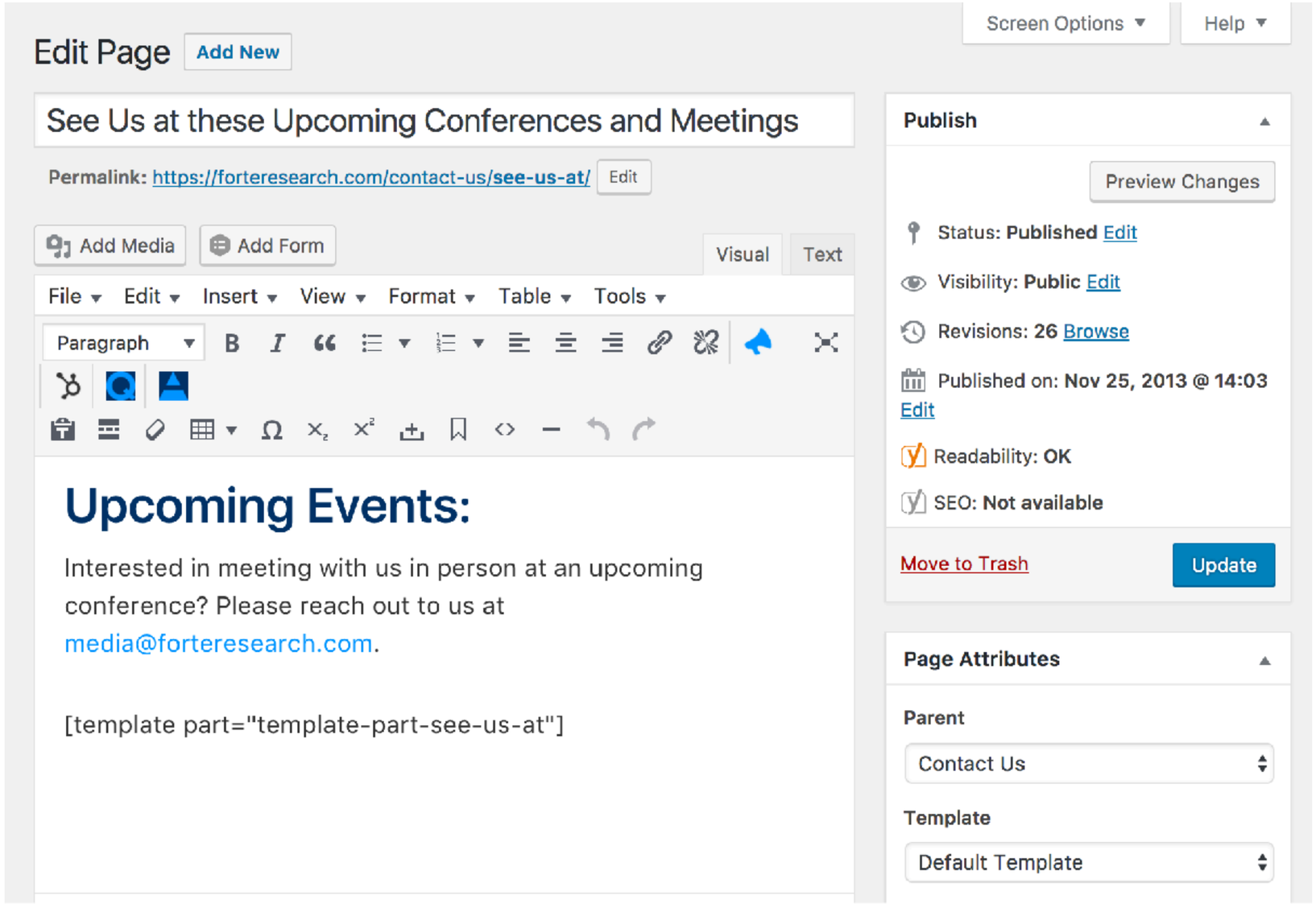
ACCI/CCAF Annual Meeting

October 15 - 17, 2017

Grand Hyatt Washington, DC, Washington, DC

Learn more →

A simple case: Upcoming conference listing



Leadership Page: Before Custom Post Types

Add Media | Add Form | Visual | Text

b | i | link | b-quote | del | ins | img | ul | ol | li | code | more | close tags

```
<div id="senior-leadership" class="content-wrapper">
<div class="shadow"></div>
<div class=" content company">
<h1 class="center ">Senior Leadership</h1>
<!-- Shree -->
<div class="col col-one-third align-right pad-top-right"><img class="image-200 alignnone size-
full wp-image-15482" src="http://localhost/forteresearch/wp-content/uploads/2013/11/Shree-2016-
Forte.jpg" alt="Shree Kalluri, Founder, President, CEO &amp;amp; Chief Customer Officer" width="400"
height="524" /></div>
<div class="col col-two-thirds pad-top-bot">
<h2>Shree Kalluri</h2>
<h3><span class="minor">Founder, President, CEO &amp;amp; Chief Customer Officer</span></h3>
<p class="big">Inspired to create a company that makes a huge difference, Shree Kalluri founded
Forte Research Systems, Inc. in 2000. Today, Shree continues to drive the company's strategic
direction and shape the culture that makes Forte a company that people and organizations seek
out and stay with. Shree takes pride in the contribution that the company's products make to the
discovery of new cures through the work done at research organizations across the United States
and beyond.</p>

</div>
<div class="clear"></div>
<!-- End Shree -->

<!-- Orla -->
<div class="border-top">
<div class="col col-one-third align-right pad-top-right"><img class="image-200 alignnone size-
full wp-image-15473" src="http://localhost/forteresearch/wp-content/uploads/2013/11/Mesta-Orla-
2016.jpg" alt="Orla Mester, Vice Vice President of Operations" width="400" height="551" /></div>
<div class="col col-two-thirds pad-top-bot">
<h2>Orla Mester</h2>
<h3><span class="minor">Vice President, Operations </span></h3>
<p class="big">As the Vice President of Operations, Orla helps define the implementation
strategy and support offerings for the Forte product family. She has 20 years of experience in
leading high performing teams to meet delivery and support requirements for complex projects and
programs. At Forte she leads a talented team of technical, functional and project management
experts that strives to deliver world class service and support to all customers.</p>

</div>
<div class="clear"></div>
</div>
<!-- End Orla -->
```

Senior Leadership

Shree Kalluri

Founder, President, CEO & Chief Customer Officer

Inspired to create a company that makes a huge difference, Shree Kalluri founded Forte Research Systems, Inc. in 2000. Today, Shree continues to drive the company's strategic direction and shape the culture that makes Forte a company that people and organizations seek out and stay with. Shree takes pride in the contribution that the company's products make to the discovery of new cures through the work done at research organizations across the United States and beyond.

Orla Mester

Vice President, Operations

As the Vice President of Operations, Orla helps define the implementation strategy and support offerings for the Forte product family. She has 20 years of experience in leading high performing teams to meet delivery and support requirements for complex projects and programs. At Forte she leads a talented team of technical, functional and project management experts that strives to deliver world class service and support to all customers.

Carrie Nemke

Before Custom Post Types:

- Difficult for staff to edit HTML or use the WordPress Editor WYSIWYG without “Breaking” the page

- Everything was sorted manually, meaning a lot of HTML edits were needed for each addition or removal.

- It didn’t feel like a good use of a CMS.

Leadership Page: After Custom Post Types

Leadership

Shree Kalluri
Founder, President, CEO & Chief Customer Officer

John Starr
Chief Financial Officer

Orla Mester
Senior Vice President, Operations

James Wurdeman
Senior Vice President, Products & Quality

Beau Grignon
Vice President, Engineering & Infrastructure

Laura Hilty
Vice President, Product Management

Shamiq Hussain
Vice President, India Operations

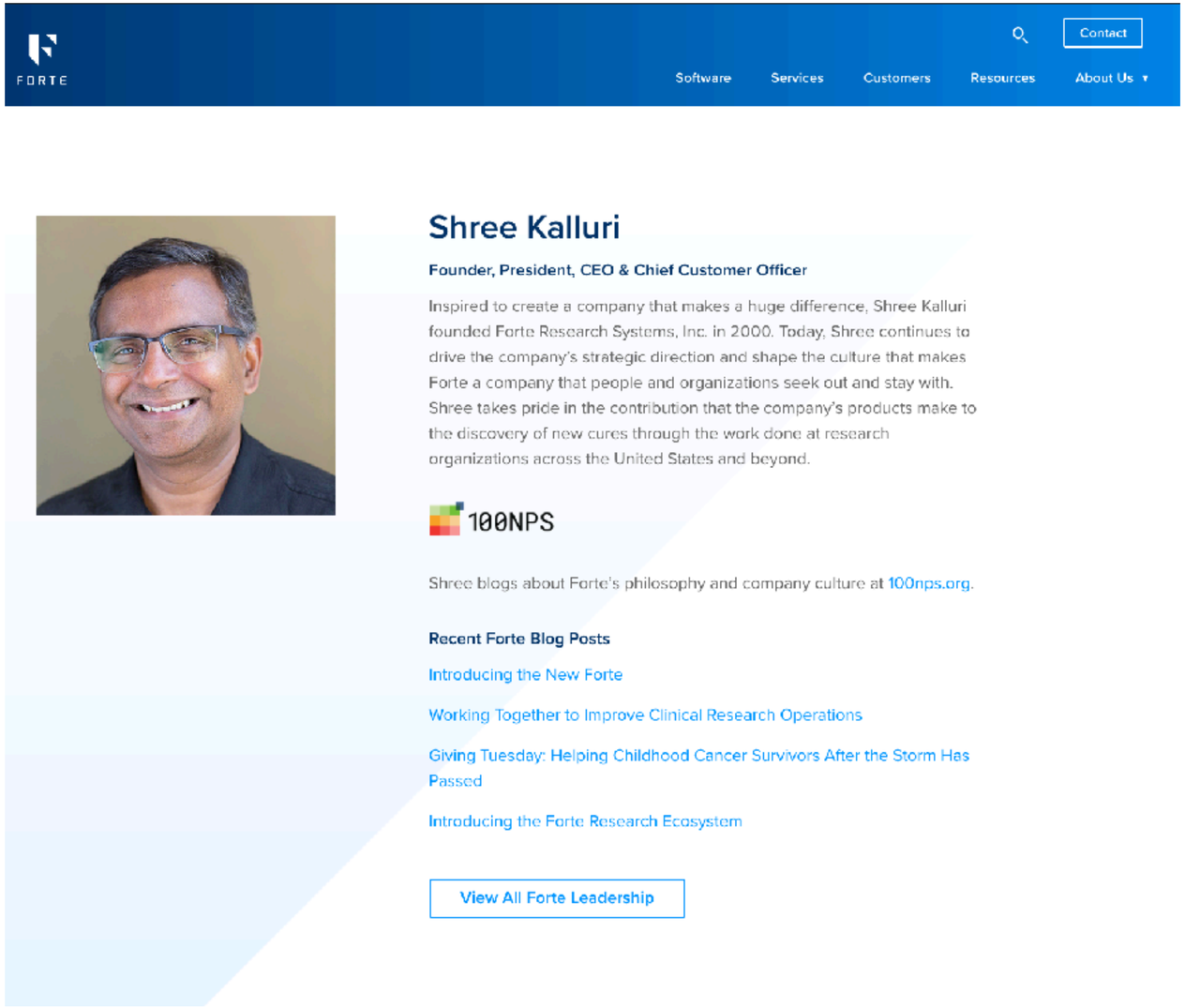
Martha Johannsen
Vice President, Culture & Team Development

Colleen M. Krattiger
Vice President, Compliance & Regulatory Affairs

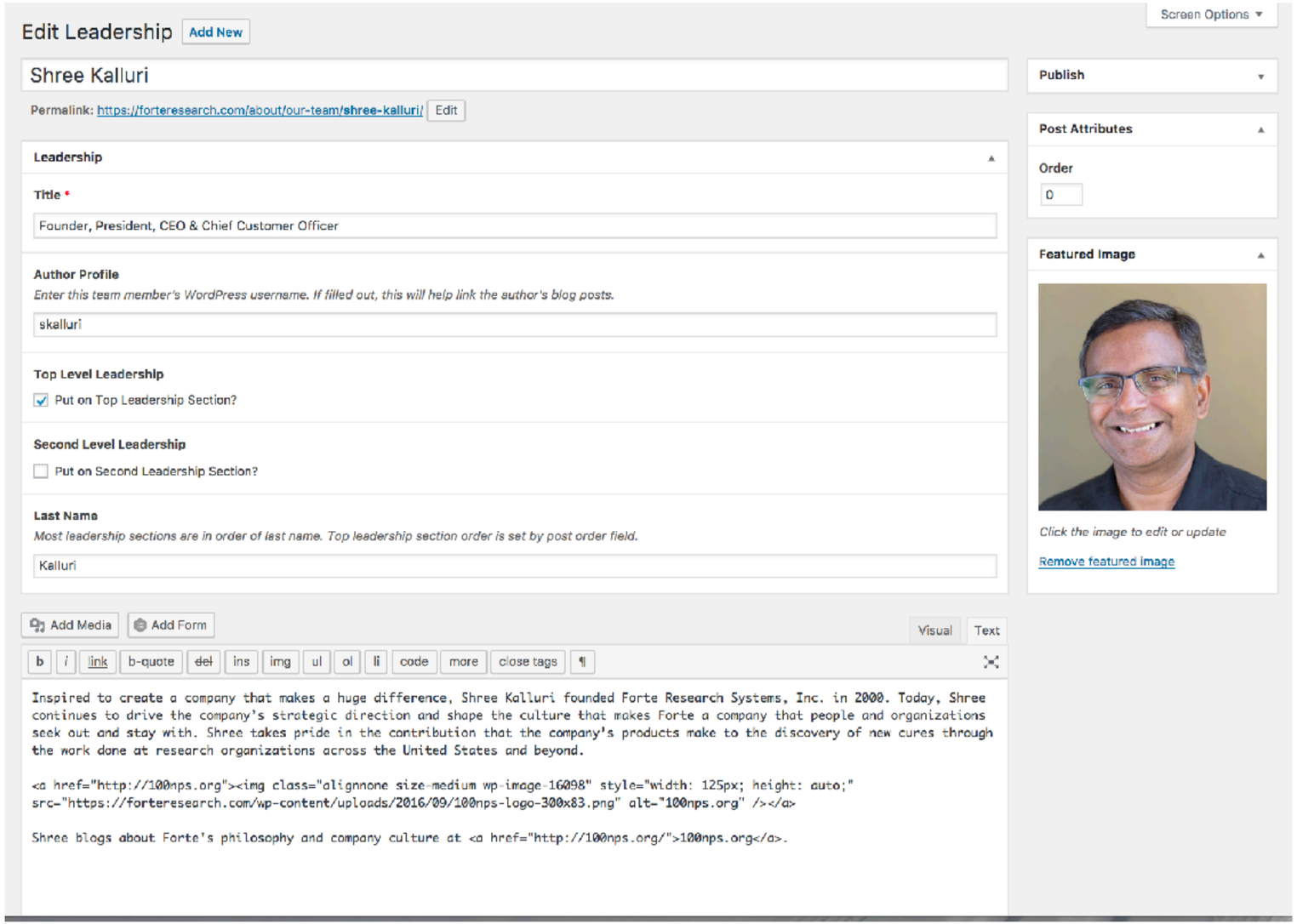
Carrie Nemke
Vice President, Customer Relationships

Mike Wokasch
Vice President & General Counsel

Leadership Page: After Custom Post Types



Leadership Page: After Custom Post Types



Designing with CPT in Mind

What to consider when designing a new website:

- What design elements do we see repeating?
- What content will need its own page?
- Is there content that will need to be re-sorted or searched?
- Is there content that will need to be syndicated or displayed on other websites, rss feeds or apps?

Content first

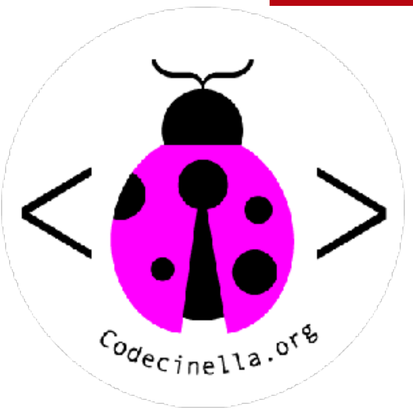
- Having a content-first approach speeds up the design and development process.
- You can create a map of your content types and the fields they will include as an early deliverable for your client or team.

Questions?

Web : andrearoenning.com
Twitter: @andreaincode

Slides & Feedback:
https://joind.in/talk/e4043

Madison Dev Community

-Madison PHP Meetup
-WordPress Madison Meetup
-MadJS
-Web Designer Meetup
-Women in Tech
-Codecinella Tech Talks

…and so many more!